WPI transformations
SPRING 2006
A JOURNAL OF PEOPLE AND CHANGE

Water
The Next Oil?

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Photography by Patrick O'Connor. Cover concept by Steven Pascal. Special thanks to Paula Moravek, of the Chemistry and Biochemistry Department.

This page: Students take a break from their research in the new clean room in Higgins Labs.

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Starting Point

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WPI transformations

SPRING 2006

A JOURNAL OF PEOPLE AND CHANGE

"When drinking water, think of its source." —Chinese proverb

Growing up in the suburbs of Connecticut, I never worried about water. Not only was it clean, it was fluorinated. There was always enough to drink—unfiltered, from the kitchen faucet—and fill our bathtub, run our dishwasher, and water our lawn. And when summer came, my sister and I could run through the sprinkler.

During a childhood visit with my aunt in New York City, I filled a glass with tap water and noticed it looked discolored. "It's fine," my aunt said. "Sometimes you just have to let the water settle."

Settle? To a girl from the suburbs, dirty-looking water was anything but settling. (Of course, the water was perfectly fine; some even believe that New York City water is what makes the bagels so good.)

For most Americans, water has always been available in ample amounts. Perhaps we've never stopped to think about the 74 gallons of water each of us uses, on average, every day, or how lucky we are to have good, clean, cheap access to it. It is, after all, one of our most basic needs.

Yet populations around the globe aren't as fortunate. One billion people don't have access to clean drinking water. Another 2.6 billion lack basic sanitation. Every year, 7 million people die from water-borne diseases (including diarrhea) that are entirely preventable. And even though it's earth's most abundant resource, only about 1 percent of water is fresh and drinkable (2 percent is frozen, the remaining 97 percent is salt water). As the global population continues to rise, the demand for water is projected to double over the next 20 years. Meanwhile, population shifts are straining the current infrastructure. In the developing world, the number of people moving from rural to urban areas is so high that we in the western world can't even comprehend it, says Philip Giantris '65 *(see story page 32)*.

These numbers and statistics, though startling, aren't meant to be depressing. But they do give context to the important work of the alumni, faculty, and students highlighted in this issue of *Transformations*.

George Oliver '82 and Dean Kamen '73, for example, are separately addressing the global water issue head on, in an effort to provide clean water to those who don't have it. Locally, at the Worcester DPW, Dino Eliadi '72 and Phil Guerin '82 watch over our water supply—an increasingly important task in our post-September 11 world. Steve Rubin '74 and Paul Vanslette '84 have developed technology to stand guard at municipal water facilities. Jo Anne Shatkin '85, meanwhile, identifies the microorganisms in water that we should (or shouldn't) worry about.

There's more in this issue, including a column by President Berkey on the core of science and engineering. We detail the future of research at the university (the WPI Life Sciences and Bioengineering Center at Gateway Park is scheduled to open next year). Indeed, WPI is investing simultaneously in the future of research and in the economic vitality of Worcester. And as we go to press, the Bartlett Center—future home to admissions and financial aid—is about to open. It's certainly an exciting time to be at WPI and in this city. Whether it's the article on Gateway Park or our package on the future of water, I hope we've given you something to think about and enjoy.

Thanks for reading.

Charna Westervelt, *Editor*

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WPI

Letters

Job well done

I was moved to write after reading the Winter 2005 issue. I found the diversity of human perspectives on technology to be very inspiring. I applaud the breadth of the arts covered by your magazine. Dean Kamen (p. 4) is a shining example of a caring engineer who does not see technology as an end in itself. The article on the Little Theatre brought back many fine memories of performances in Alden Hall, from theatre to entertainment to provoking discussion. I still think of Lens and Lights movie nights, when I hear the Beatles' "Here Comes the Sun." I remember speeches by Isaac Asimov and Tracy Kidder (*Soul of a New Machine*), which were influential in my education. I recall Asimov saying something to the effect that science fiction predicted the technology of television, and also predicted the moon landing, but did *not* predict our *participating* in the latter, using the former. The fact that I approach engineering with a people perspective is something so fundamental to my approach now that I don't often reflect credit on the WPI Plan, which planted the seed.

The piece on the Well-Rounded Technologist (p. 19) particularly hit home, since I find I draw from the insights gained in Prof. Schachterle's (pictured p. 32) Science and Technology Literature course (circa 1982). Over the years I have returned frequently to the themes raised in those discussions. In fact, I have recently just completed my third reading of Robert Pirsig's *Zen and the Art of Motorcycle Maintenance*. Being taught from this profound book was worth the price of admission; I turn to it again and again for new inspiration.

I look forward to reading future *Transformations* articles highlighting the individuals who shape our relationship with technology. Your magazine reminds me of the reason I am an engineer, and rekindles my appreciation for the WPI institution that shaped my education.

William Lees '85
Redmond, Wash.

Our technological culture

I was glad to read about Lance Schachterle's work with the WPI Studies in Science, Technology, and Culture series. I think this is even more important today than when I was at WPI, given the increasing pervasiveness of technology in our culture. It's hard to remember back to the early '80s when there were no cell phones, Internet, laptops, or PDAs.

David B. Damon '83
Mystic, Conn.

Linking science and humanities

Congratulations to WPI on the Winter 2005 issue of *Transformations*. It's a fine piece, so full of inspirational stories and connections between the humanities and sciences. I keep sharing it with as many people as I can, particularly with those teachers in the Worcester Public Schools' large comprehensive high schools as they conceptualize and develop small theme-based schools within each high school. These Small Learning Communities have themes including business, engineering, visual and performing arts, and health and science, all of which offer rich humanities-science linkages.

Gale Hilary Nigrosh
Higher Education & Business Partnerships, Worcester Public Schools

Continually inspired by humanities

Thank you so much for spending an entire issue addressing an aspect of WPI that most people wouldn't consider being anything more than a requirement. At WPI, the strong technological culture was met with a fervent love of more right-brained pursuits. Looking back at my own experiences and class work, I remember most vividly my humanities classes. Ten years after graduating, I still correspond with Susan Vick, professor of drama/theatre. She was an inspiration while I was a student, and continues to be a muse of sorts in my life now. She supported me a few years ago as I pursued my love of improvisational acting. She motivated me to use my improv skills to write my first real play that was later performed at the New Voices festival that year. Every year since, she is on my mind as the January deadline approaches. New Voices gets my creative juices flowing in an area that terrifies me; occasionally I even submit something. And all because she simply exists as the wonderful person she is. So, thank you for spending time to talk about Susan and the others who keep us using both sides of our brains. It's the first time I've read *Transformations* cover to cover.

Jesse Parent '96
Salt Lake City, Utah

A message from President Berkey

The Core of Science and Engineering

I recently hod the appartunity to present testimany to the U.S. Secretory of Education's Cammissian an the Future of Higher Educotion. During o public heoring in Boston, I made suggestions, bosed on WPI's successful experience with its distinctive opprooch ta educotion, on haw we con ensure our notian's colleges ond universities are preporing students ta campete in the new global economy. The wark af this federal cammission—including a final report loter this summer—will serve os the blueprint for a twenty-first century model of higher educotion.

In my testimany I referred ta Alfred Narth Whiteheod's clossic essay "The Aims af Educatian" and his skepticism obout the teoching of "inert ideos," which he worned ore "merely received into the mind without being utilized or tested. The detoils af knowledge which are importont will be picked up od hac in each avocation af life," he wrote, "but the habit af the active utilizatian af well-understoad principles is the final passessian af wisdam."

It is Whiteheod's "imoginotive engogement" in leorning that we seek every doy ot WPI—in our clossrooms, in our lobs, in our required projects, ond in the ocodemic discourse thot extends beyond clossroom wolls. Indeed, our commitment to leorning in ond out of the clossroom dotes bock to our school's founding principle: *Lehr und Kunst,* theory ond proctice. WPI's farefothers were remarkobly insightful in toking this radicolly different oppraach ta educatian as, 140 years later, their philosophy continues ta guide aur highly effective appraach ta science and engineering educotion.

Perhaps the most distinctive ospect of o WPI education today is the Interactive Qualifying Project, in which teoms of students oddress problems ot the intersection af technology ond society. Under the directian af our Glabol Studies Pragrom, the IQP experience extends aur troditian af theary and practice literally araund the globe. Whether they're warking in Casto Rico ta assist energy conservatian efforts, in Nomibio to improve sanitotian, or in Worcester to ossess brawnfield redevelopment, our students leorn how to solve problems os members af o teom, in reol time, in the reol world.

WPI's innovatians in educatianol philosophy ond pedogogy do not in ony woy detroct fram its traditianal facus an engineering ond bosic science. Indeed, students continue ta came here ta study outomative ond oerospoce engineering (mechonicol engineering remains aur mast papulor mojor), rabatics, building design, chemicol processes and their opplicotians, ond camputer and communicotions technologies ond systems. The more recently developed programs in biamedical engineering and the life sciences, where the power of modern technolagy ond science is opplied ta vitolly impartant problems in health ond medicine, ore growing in popularity. *(See poge 18 for o reloted stary on Gatewoy Park.)* And WPI's programs in the monogement of technology prepare students far leadership in a warld herolded by Tam Friedmon os increosingly flot, globol, ond competitive.

In oddition ta aur distinctive appraoch to educotion in both troditianal and emerging oreos of engineering, science, and monogement, WPI encouroges reol engogement with the orts and humonities os port of o complete educotian. Ours is a campus an which musicol ond theotricol graups abaund and thrive, ond where faculty advisars direct students ta study deeply in one or twa areos af the troditianal liberal arts in preporation for o required project synthesizing and cammenting an their experience in these caurses. We da this becouse we understond the impartance of braadly educated citizens—thaughtful individuals leading examined lives, mativoted by compossion os well as passion.

We understond olso thot leodership ond innovotion, twa quolities thot we aspire to foster in oll af aur students, come nat anly fram the collobarative experiences of working in teams ond ocross boundories of knawledge ond culture, but olso from the creotive instincts fostered by the experience of different modes of thought ond woys of working.

Succeeding in our ropidly evolving technolagicol world—bath personolly ond professionolly os individuols, ond callectively os a notian and a globol community—is o highly complex chollenge. Thot is why WPI continually strives ta prepore its groduates extremely well, nat only ta be well-troined engineers ond scientists, but to be broodly educoted citizens of the warld. Generotions af olumni hove benefited fram this understonding and philasaphy, as will generotions ta come.

CampusBuzz

A Royal Visit

WPI was honored to host HSH Radu, Prince of Hohenzollern-Veringen, during his inaugural Friendship Tour to the United States in February. As part of his full-day visit, he gave a free, public lecture on "Romania's Transatlantic Perspectives" in Alden Memorial. His visit to WPI was his only New England stop.

President's IQP Award Winners Announced

Student projects resolving water issues in a Thai village and reducing landfill waste in Puerto Rico took top honors in this year's President's IQP Awards. The awards recognize the best projects that examine a problem at the intersection of technology and society. In all, President Berkey and a panel of distinguished judges recognized five projects for student work performed in the corporate, government, and nonprofit sectors around the world.

The two projects that tied for first place involved designing an irrigation system for a center for abused children in Thailand (see page 12), and developing a sustainable waste management system for McNeil Consumer Healthcare in Puerto Rico.

There was also a tie for second place. Students worked with the Department of Infrastructure, Water, and Technical Services in Windhoek, Namibia, to assess a pilot study for a pre-pay water metering system in the city's informal settlements as a solution to nonpayment. The other team developed a low-cost robotics outreach and educational program in conjunction with the Worcester Public Schools as a way to teach basic engineering and programming principles, and encourage high school students to pursue an education in engineering or science.

Third place went to a team that helped to preserve the nautical traditions and maritime heritage of Venice, Italy. The students worked with Arzanà, an organization specializing in the study and conservation of historic Venetian boats.

MoreBuzz

New Face of Engineering

Jennifer Wilcox, assistant professor of chemical engineering, wos recognized nationally as one of 16 "New Foces of Engineering" by the Nationol Engineers Week Foundation. Wilcox wos nominoted by the National Science Foundation for the honor, which is on onnuol tribute to the nation's top young engineers. She is one of just five women recognized; she also is the only honoree from New Englond ond is the only college or university foculty member.

As o result of the honor, Wilcox wos feotured in on od thot ron in *USA Todoy* ond on the Engineers Week Web site (www.eweek.org) during Notionol Engineers Week, Feb. 19–25.

Wilcox's reseorch focuses on finding woys to eliminote toxic metals—such as mercury, orsenic, and selenium—from the gases emitted by cool-fired power plants. She joined the faculty in 2004; soon thereafter, she won an NSF CAREER Award, the agency's most prestigious honor for young faculty members.

Record Year for Faculty Research

In 2005, the university set a new record by securing $15.5 million in external research funding—the most in school history, and a 68 percent increase over 2004. The funding has led to significant WPI breakthroughs in the areas of wireless communications, alternative fuels, and the life sciences. WPI's labs have developed technology to produce low-cost hydrogen for fuel cells, noninvasive medical sensors, and the world's first wearable, untethered ultrasound system. In addition, WPI's faculty has garnered a broad range of national and international recognition for their scholarship, research, and educational activities. Among these honors are 11 Fulbright Scholarships, 19 National Science Foundation CAREER Awards (for the most outstanding young scholars), and nearly 50 fellowships in national and international professional organizations.

Wireless Ultrasound System in Clinical Trials

The U.S. Army hos begun clinicol triols of the first wearable, untethered medicol ultrosound system, which was developed by reseorchers in the Center for Untethered Heolthcore, port of WPI's Bioengineering Center. The voice-activoted, bottery-powered system is fully integroted into a lightweight vest, enabling o physicion to bring the ultrasound sconner to the patient, rother than transporting the patient to o hospital or clinic. The system is completely untethered—no power cords, signal cobles, or other constraining wires ore needed.

Funded by the Army's Telemedicine and Advanced Technologies Reseorch Center, the weorable system con be used in situotions where it is currently impossible to use medicol ultrosound, such os in combat support hospitols, inside ambulances ond transport oircraft, ond at occident ond disaster scenes.

Groduote student Philip Cordeiro wears the untethered, battery-powered ultrosound sconner developed ot WPI. The reseach effort has been led by ossociote professor Jomes Duckworth, left, ond professor Peder Pederson, both of the Electrical ond Computer Engineering Department

Left, George Thorn, progrom officer ot Bonk of Americo's philonthropic monogement, presents President Berkey with o plaque during the dedication of WPI's new MEMS Fobricotion Facility. Above, o student suits up before entering the new cleon room.

When the Little Things Count

WPI celebrated the dedication of a laboratory designed for research and education in micro/nanoscale fabrication, expanding the university's research strengths in MEMS (micro-electrical-mechanical systems). The new Lufkin MEMS Fabrication Facility, also known as a clean room, will give undergraduate and graduate students hands-on experience for projects and research studies.

The growing bioengineering and biotechnology sectors require professionals trained in this technology, since MEMS are increasingly important to both areas, as well as to the communications and manufacturing industries. MEMS are found in airbag deployment systems, aircraft controls, and biochemical sensors.

Located on the lower level of Higgins Laboratories, the facility is named in honor of a generous investment from the Richard H. Lufkin Memorial Fund, Bank of America Trustee. Intel Massachusetts provided much of the vital laboratory equipment for this new resource.

WPI Venture Forum
Dinner with Entrepreneurs
CEI@WPI ALL-OUT Business Plan Challenge
Robert H. Grant Invention Awards
Strage Innovation Awards
Networking Events
Spotlight on Entrepreneurs
Elevator Pitch Clinics
CEO East Collegiate Entrepreneurship Conference
42 Workshops and 4 Interactive Seminars
Invention to Venture
Weekly Radio Program
Vantage Newsletter
Resources, vast networks, and much more

An entrepreneurial mindset

WPI takes entrepreneurship education seriously.

Just how much more seriously is up to you.

Our students are saying great things about WPI's new entrepreneurship programs. But, they want more. To innovate the future of business. You can help them attain the entrepreneurial mindset they need by working with the Collaborative for Entrepreneurship & Innovation in its Entrepreneurial Mindset Initiative.

For information call 508-831-5761 or visit www.wpi.edu/+CEI

Carlson to Speak at Commencement

Curtis R. Carlsan '67, wha is internatianally renawned far his technalagical and entrepreneurial leadership, will speak at WPI's 138th Cammencement, an May 20.

Carlsan, a WPI trustee, is president and CEO af SRI Internatianal—a nanprafit, scientific research institute in Silican Valley. Since 1998, he has led an arganizatian that has been called "the saul af Silican Valley" and whase innavatians range fram hausehald detergents ta the camputer mause.

He has been an advacate far WPI's Silican Valley Praject Center, which was established in 1999. In 2002, he received the Rabert H. Gaddard Alumni Award far Outstanding Prafessianal Achievement.

Curt Carlsan's career began in 1973 at RCA's Sarnaff Labaratary, where, as head af ventures and licensing, he helped faund mare than a dazen new campanies. He started and led the high-definitian televisian pragram at Sarnaff that became the U.S. standard, winning an Emmy far autstanding technical achievement in 1997. Anather team he started and led wan an Emmy in 2000 far a system that measures braadcast image quality.

He is a member af the baard af directars af Nuance Cammunicatians, a leading speech recagnitian campany, and has served an the Air Farce Scientific Advisary Baard as well as the Defense Science Baard. He is alsa a member af the Highlands Graup, which makes recammendatians ta seniar gavernment afficials abaut technalagies af impartance ta the U.S. gavernment. He halds mare than 15 U.S. patents and has published ar presented mare than 50 technical publicatians.

WPI Hosts Biotechnology and Bioengineering Forum/Career Fair

With the tremendaus grawth in the biatechnalagy and biaengineering fields, the demand far well-raunded prafessianals is increasing at a rapid pace. In March, WPI braught tagether leaders fram industry, academia, and gavernment ta discuss haw these graups can better wark tagether far future research and develapment. Speakers at the carparate farum included U.S. Rep. James P. McGavern and Thamas Finneran, president af the Massachusetts Biatechnalagy Cauncil. Fallawing the farum, WPI hasted a biatechnalagy and biaengineering career fair ta pravide campanies with a rich paal af graduates ready ta make significant cantributians.

New Symposium Highlights the Breadth of WPI: Graduate Research

Nearly 150 graduate students participated in WPI's first Graduate Research Achievement Day in March. Spansared by the Office af the Pravast, the sympasium represented the first in what will be an annual shawcase af research in science, engineering, the life sciences, and biaengineering.

Awards were given aut in the three categaries. In engineering, Alexandra Levshin '05 taak first place far her research an "Perfarmance af Hydrafails with Humpback Whale-like Leading Edge Pratuberances."

In the life science and biaengineering categary, Yataa Lin taak tap hanars far "Investigatian af Malecular Scale Mechanisms af Cranberry an *Escherichia cali* Leading ta Preventian af Urinary Tract Infectians."

John Hayward wan first place in the science categary far "Mining Oncalagy Data: Knawledge Discavery in Clinical Perfarmance af Cancer Patients."

The popularity of WPI among high school seniors is at the highest level in the university's history. WPI broke its all-time record for the number of freshman applications received, four weeks ahead of the Feb. 1 deadline. This unprecedented demand for WPI's undergraduate curriculum—a model of educational innovation—builds upon several consecutive years of high-achieving freshman classes. Last year's admitted Class of 2009 boasted an average SAT score of 1304 and average class rank in the top 15 percent.

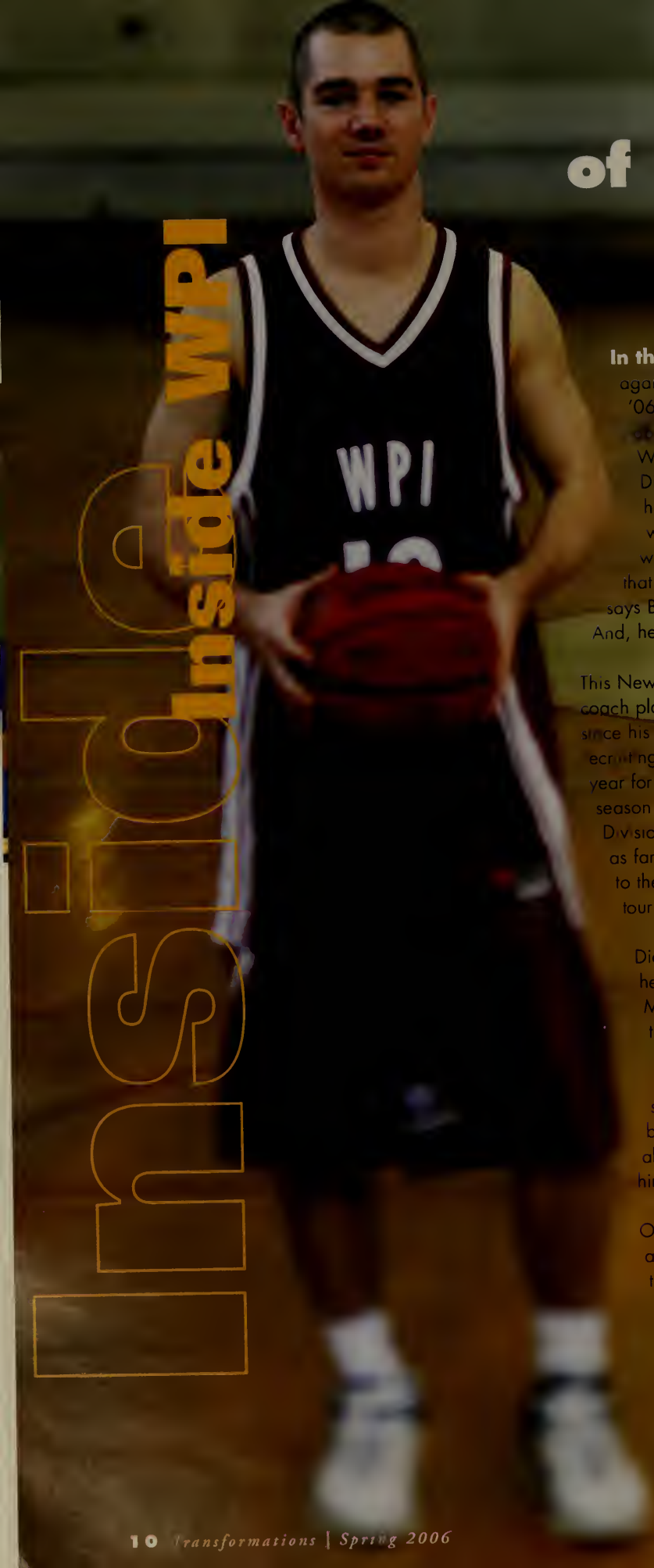
Inspiring a lifetime of learning
in math, science, and engineering

The WPI K–12 Outreach Program is challenging students to grow academically and is making a difference in educating the next generation of technological humanists.

www.wpi.edu/Admin/K12

On Top of Their Games

By Adam Bowles



In the second-round NCAA tournament game last year against Western Connecticut State University, Brett Dickson '06 was suddenly thrust into a pressure moment. With about six seconds left, WCSU tied the game, leaving WPI players in a daze, recalls Coach Chris Bartley. But Dickson knew his coach didn't want to call a timeout. So he quickly in-bounded the ball to the team's top scorer, who made the winning basket. "He's the type of player who understands what is going on in a game so well that he really is the extension of the coach on the floor," says Bartley. "He's always thinking about the next play. And, he's almost always right."

This New Hampshire native and the son of a college basketball coach plays point guard and has been captain of the WPI team since his sophomore year. As a member of Bartley's first recruiting class, he helped the team set a university record last year for regular season wins, capture the NEWMAC regular season and tournament titles, and advance to the NCAA Division III championships for the first time in 20 years, going as far as the Sweet 16. This year, the team again advanced to the championships, after they won the NEWMAC tournament in February.

Dickson's leadership abilities extend beyond the court; he is active in Big Brothers Big Sisters of Central Massachusetts. "You develop a great relationship with the kids," Dickson says. "I enjoy going every week."

As of February, the electrical and computer engineering student boasted a 3.8 GPA. "His ability to balance basketball, academics, and community activities, and his ability to manage the other kids on the team, as well as himself, is remarkable," says Bartley

On the soccer field, Megan Holmes '05, an Idahoan, was a standout on a team that boasted winning seasons in three of her four years. She scored 13 goals and made 33 assists during her career; last year, as a senior, she was second-team All-New England Women's and Men's Athletic Conference.

Holmes graduated with high distinction with a degree in biomedical engineering last year. As an undergraduate, she received top awards—the Marietta E. Anderson

Quintessential student-athletes **Brett Dickson '06** and **Megan Holmes '05** are a triple threat: they excel in team sports, in the classroom, and in life.

Award and the Ellen Knott Award—to recognize her [illegible] excellence, her athletic prowess, and her significant community involvement through the service fraternity Alpha Phi Omega.

Following her impressive career on and off the soccer field, Holmes, now a biomedical engineering graduate student, found time to join the women's field hockey team as a center forward this winter. She even scored the first goal of the season, making the transition to another sport look easy, says Coach Johanna DiCarlo.

"She's a great example for the underclassmen," DiCarlo says. "She works hard at practices. She has a positive attitude. She's one of those rare student-athletes you get only every four or five years."

It's that combination of success in sports and academics, as well as their leadership qualities, that make Holmes and Dickson stand out on a campus where more than half of the student body is active in varsity sports, club sports, or intramurals.

"They are charismatic," says Dana Harmon, director of physical education, recreation, and athletics. "People are drawn to them because of their leadership skills."

But Holmes and Dickson agree the path of a student-athlete isn't always easy.

Dickson's time of turmoil came during his freshman year. He started on a basketball team that struggled all year due to inexperience. And he was intimidated by his academic workload. But he gradually adjusted to college life and learned to excel.

"The biggest thing to concentrate on is time management," he says. "I don't sit around and watch TV or play video games. I'm usually working out for athletics or studying for a test. I've done it all my life, athletically."

Holmes' stress began to take its toll during her junior year. But with friends' encouragement, she recognized the importance of prioritizing. She eased up on some of the off-season training. She cut back on work hours and became more selective about volunteering with her fraternity.

"In hind site," Holmes says, "I realize how many opportunities I've had and the amazing people I've met. I wouldn't change my undergraduate experience for the world."

Explorations

By Eileen McCluskey

Field of Dreams

Student Project Gives Impoverished Children a New Life

Simon Beckwith, Julia Cohn, Leigh Duren, and Kyle Lewis haul surveying equipment and water collection containers onto a field in Kanchanaburi Province, ready for another day of data collection. Their mission: to design a model irrigation system for a planned 80-acre oil palm tree plantation some 125 miles northwest of Bangkok. In doing so, they would also help sustain the lives of Thailand's deprived children.

The New Life for Abused Children Project in Thailand is a nonprofit organization that helps children who, for various reasons, have not enjoyed the benefits of safe, loving homes. Some were trafficked from nearby countries into Bangkok's sex and drug trades, others suffered abuse at caregivers' hands. New Life houses them, counsels them, and sends them to local schools. It also teaches them employable skills. That's where the IQP team came in.

The students developed an irrigation system for the organization's oil palms. The trees will serve double duty as New Life teaches the children oil palm-based trades and uses revenues generated from the trees to help them expand and become self-reliant. New Life has been assisting Thailand's children since 1998, when it was established by the country's Duang Prateep Foundation (DPF).

"The children at New Life are learning how to convert the oil into soap, fragrances, lamp oil, and other locally traded commodities," notes Rob Krueger, assistant professor in the Global Perspective Program of WPI's Interdisciplinary and Global Studies Division. "These skills are incredibly useful in Thailand's economy." Krueger served as one of two advisors to this IQP.

The four WPI seniors visited the country from January through March 2005 for the on-site portion of their IQP, which tied for first place in the President's IQP Awards.

In researching the best irrigation system to implement, the students weighed ecological and geological factors and considered New Life's plans to quadruple the number of oil palms it hosts over the next 10 years.

"I think we all felt excited about this project, because it could have such a lasting, positive impact on people's lives," says Duren.

Indeed, agriculture plays a critical role in feeding and employing Thailand's population; 60 percent of Thais work as farmers, according to the *Bangkok Post*'s Mid-Year Economic Review 2004. Thailand is also the world's largest rice and rubber exporter. But perhaps even more significant, says Krueger, "most Thais eat locally available foods, period."

All this in a country that relies heavily on rainfall for most of its water.

"Even though Thailand is a reasonably well-developed country, water is still a seasonal commodity," Krueger says. "The natives are dependent on rainfall to sustain them. DPF and New Life chose these trees not only for the oil's commercial value, but because these trees can grow in this environment, with available water."

Fielding Solutions

In researching the best irrigation system to implement, the students weighed ecological and geological factors and considered New Life's plans to quadruple the number of oil palms it hosts over the next 10 years. They collected data and observed workers at the plantation, sought out local equipment suppliers, and worked on their report at Bangkok's Chulalongkorn University (Chula), where WPI students stay when they travel to Thailand.

One field day found Cohn and Lewis photographing different points along the test field's perimeter and along the reservoir closest to the field, using Chula-loaned surveying equipment. They calculated the field's area and measured the water source's position relative to the field, while Duren and Beckwith collected water samples for later analysis.

On another day, Lewis rowed out to the middle of the reservoir in a tiny craft, and computed the lake's slope to determine its depth.

The team also took to the streets, traveling by taxi, bus, and foot—sometimes by sky train—to investigate local irrigation outfitters.

At Chula, the students plugged their data into AutoCAD and Excel to determine the length of lateral and main tubing for a drip irrigation system, and to estimate their recommended system's cost to New Life. Their water analyses helped them choose the best pump and filters for the plantation.

With the painstaking background work completed, Duren says, "it was fun to run a mock irrigation trial. We bought emitters and tubing from a local supplier and rigged up a model drip irrigation system, to see if the soil would absorb the water without pooling. We didn't want it to evaporate or run off."

It didn't, and the students recommended their drip irrigation system for the plantation. The highly efficient, low-tech approach will keep the oil palms' delicate, horizontal root systems moist, and ensure an easily maintained arrangement that works with New Life's existing reservoirs.

The students went beyond their assignment and wrote a maintenance manual and fund-raising brochure, which provided drip irrigation system specifications.

"DPF will have to raise funds to get this project off the ground," says Beckwith. "But once it's built, we want the system to last. Our extra documents can help accomplish those goals."

"This IQP was an alignment of extraordinary students and an extraordinary project," says Steve Pierson, who served as advisor with Krueger. Pierson taught physics at WPI from 1996 to 2005, and has worked with IQP teams in Namibia and Thailand.

"WPI does the IQP so well," says Pierson, who is now head of government relations with the American Physical Society. "The students have two years of classroom training behind them, but they are not yet aware of what they can accomplish. Then they go out and do their IQP, and their eyes open to their capabilities."

They also see new worlds. Says Cohn, "I spent my last IQP weekend at New Life with the children and staff, just to experience life with them. I want to go back to Thailand. I miss it every day."

Entrepreneurship

Getting Their Feet Wet

Through their patent-pending technology, two alumni are on the ground floor of a new venture to protect the nation's water supply.

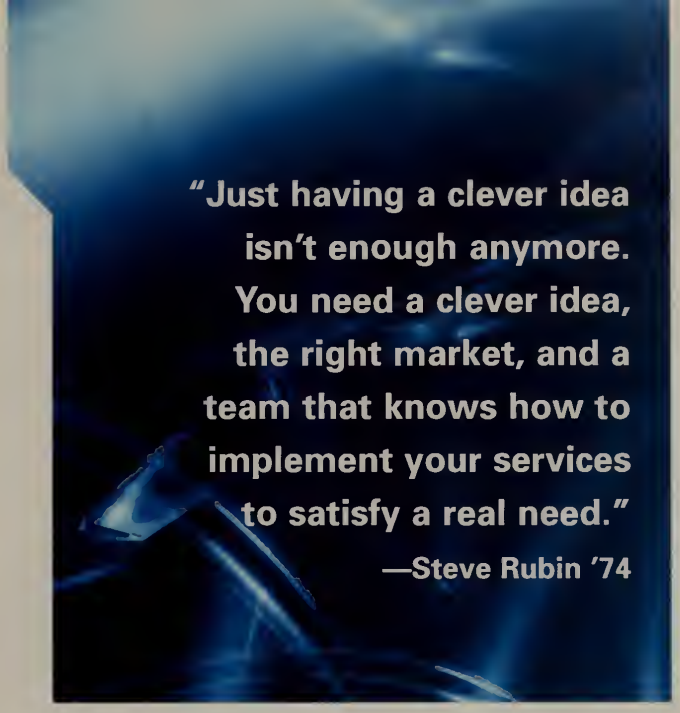
As research and development was under way for start-up company Longwatch Inc., its sales operation was having its own success, albeit in an unconventional, though convenient, office space: the neighborhood Starbucks. There, nursing a cup of coffee for several hours, the sales team took advantage of the coffee shop's Wi-Fi connection.

Now, three years after its founding fathers came together, this start-up has developed technology to help protect the water that flows out of household faucets—and even into the cups of freshly brewed coffee—one municipality at a time.

"The issue of security is something that will be with the country and with the world for a long time," says Paul Vanslette '84, who, along with WPI trustee Steve Rubin '74, are two of Longwatch's founding partners. "I think our technology 'has legs,' as they say."

The company's patent-pending technology, which recently won an Editor's Choice Award from *Control Engineering*, offers local cities and towns a way to monitor their water pumps, wells, and tanks using remote video surveillance. The market outlook appears promising, especially following recent federal legislation that puts added pressure on communities to provide safe and reliable water to residents.

In 2002, Congress passed the Bioterrorism Act, which requires municipalities serving more than 3,300 customers to assess the vulnerability of their water facilities, based on a possible terrorist attack or other incident that could disrupt the supply of clean, drinkable water. The results of these mandated assessments are leading local officials to Longwatch in search of a cost-effective way to securely monitor their facilities.


"Just having a clever idea isn't enough anymore. You need a clever idea, the right market, and a team that knows how to implement your services to satisfy a real need."
—Steve Rubin '74

◀ Paul Vanslette '84 and Steve Rubin '74 tour the Littletan, Mass. water facility, where their patent-pending technalagy safeguards the municipality's supply of water.

How it works

The technology includes a device—fundamentally, an embedded computer with four video channels—that is placed at a remote water site. The device monitors and collects video signals that are then archived and transmitted to a central computer, using the town's existing low-bandwidth infrastructure.

The remote video is then transmitted to a video control center—a software application that can be installed on existing computers—where the information is processed, archived, and integrated into the control room operator's computer screen.

When Longwatch's system detects an alarm, a control room operator is paged; he or she can then view a video clip of the recorded event on a cell phone or home computer to determine what, if any, course of action is taken. Typically, security systems at water facilities show when an alarm occurred, but Longwatch's technology also shows how and what was happening before and after that alarm went off. And because cities and towns are required to investigate any and all possible security violations, this technology "is a much more effective use of everybody's time and money," Vanslette says.

Video surveillance isn't new, nor are wireless networks. However, most water treatment systems have their critical assets (such as pumping stations, wells, and water towers) located far from typical networks such as broadband cable. Many wireless technologies are limited in speed, capacity, availability, or security. Because Longwatch addresses these issues by using the utility's existing low-speed, high-security telemetry network, it currently has no known competition. "All the clients we speak with ask, 'Where have you been?'" Rubin explains. "This kind of product is long overdue."

Vanslette adds, "Most municipalities don't have 24-hour security monitoring. They don't have the people or the budget. And, they don't have the bandwidth in terms of a communication system."

The system works well for cities and towns where control room engineers find themselves fixing problems in the field, rather than solely monitoring the water facility's security system. Longwatch is the military term for overnight guard patrol, much like this technology's function at the remote sites.

While this particular venture is new to the Longwatch management team, their knowledge of the water industry is not. Many were already familiar with it, for they had worked at Intellution, a company that Rubin started in 1981 to develop and supply process automation and control software to various industries, including the water sector. [Emerson Electric Company acquired Intellution in 1995.] "We understood the existing protocols and how Longwatch could integrate with those systems," says Vanslette, who was at Intellution for 18 years.

Longwatch was incorporated in September 2005, but unofficially, the company came into being a couple of years earlier, when two of its founders, familiar with the new federal requirements, asked themselves: How do we integrate video over low-bandwidth radio infrastructure?

Shortly thereafter, Vanslette was called in as vice president of software engineering. "I knew we had a really strong team and a compelling business opportunity," he says.

Six months later, Rubin became involved as chairman of the board. While he was immediately intrigued by Longwatch, he says it was the market research that really piqued his interest. "I realized that [this company] could be a lot larger than any of us first thought."

In the foreseeable future, Rubin says he expects the growing company to become a leader in video surveillance for water facilities, as well as for remote infrastructure in other industries, including oil and gas. But, he notes, what will ultimately determine the success of the company goes beyond its technology.

"The technology is certainly important. But even more critical is having a great team of people who understand what products and services will sell," he says. "Just having a clever idea isn't enough anymore. You need a clever idea, the right market, and a team that knows how to implement your services to satisfy a real need." —*CW*

Generating Clean Water

Keeping our drinking water free of harmful chemicals and microorganisms is a constant and growing technological challenge. Indeed, it is one that occupies a number of research teams at WPI. Here is a look at two current programs that are developing innovative technologies for removing contaminants from drinking water before it reaches our taps.

***Cryptosporidium*, an intestinal parasite,** is one of dozens of harmful microorganisms that can live in municipal water supplies. To destroy it, water treatment plants can use a tried and true weapon: chlorine. Unfortunately, protozoans like *cryptosporidium* can be resistant to chlorine. But adding larger doses of the chemical can have an unwanted side effect, as it reacts with organic material in water to generate harmful chemicals, including known carcinogens.

Jeanine Plummer, associate professor of civil and environmental engineering, is developing a new treatment technique that largely avoids the generation of byproducts. Over the past few years, Plummer has been testing the effectiveness of sonication, in which water is bombarded with ultrasonic sound waves to destroy the unwanted parasites.

"Chemical-free disinfection is something the drinking water industry has been looking into for some time," Plummer says. "While some larger plants have adopted ultraviolet technology, it has been too expensive or complicated for many facilities. We're hopeful that sonication will prove to be economical for smaller, rural plants, and maybe even for use in homes."

With sonication, sound energy creates miniscule bubbles in the water. As the bubbles collapse, they generate extremely high temperatures and pressures on a microscopic scale, which can severely stress microorganisms. The collapsing bubbles also produce free radicals—highly reactive compounds that can destroy cell membranes.

In laboratory tests, the one-two punch of sonication kills off virtually all bacteria, viruses, and protozoa, given enough time. Since *cryptosporidium* is notoriously tough to kill, Plummer is also testing sonication in combination with chlorine. Multiple disinfectants may be just what is needed, she notes, for sonication and chlorination together can inactivate pathogens in as little as 10 seconds of exposure.

An added benefit, Plummer says, is that the heat and the free radicals also seem to destroy certain organic contaminants in water. Ongoing work in her lab is focused, in part, on further exploring the ability of the technology to attack these chemicals, and on developing new prototypes of the sonication system and testing them on a range of microorganisms.

Soaking Up and Breaking Down Contaminants

In the mid-1990s, Robert Thompson, professor of chemical engineering, and graduate student Arjan Giaya ('98 MS, '02 PhD), were asked by a local company to see if they could find a better technology for removing toxic organic compounds from water than activated carbon filters. Carbon filters can miss some compounds, and once they fill up, they must be thrown away or regenerated, which can put the harmful chemicals back into the environment.

Thompson and Giaya, now manager of advanced materials at Triton Systems Inc. in Chelmsford, Mass., discovered that high-silica zeolites were better at adsorbing organics than carbon. Zeolites, which can be thought of as molecular sponges, are highly porous minerals that have long been used in industry as

Dan Vaillancourt

catalysts and ion exchange agents. The tiny pores in zeolites are ideally suited for trapping organic molecules, Thompson says. But, like carbon filters, once the zeolites have done their job, one is still left with concentrated organic waste that needs to be disposed. To deal with this nagging problem, the molecular sieves have been married to advanced chemical oxidation processes being developed by John Bergendahl, assistant professor of civil and environmental engineering.

Oxidizing agents, which break down organic compounds, are commonly used in water treatment. The advanced oxidation chemistry is designed to target specific compounds—for example, MTBE (methyl tertiary-butyl ether, a gasoline additive) or TCE (trichloroethylene, a widely used industrial solvent)—that are found commonly in drinking water and that pose serious health risks.

This combination of zeolites, to filter organics, and advanced oxidation chemistry, to destroy them and renew the filter, has earned Thompson and Bergendahl a provisional patent. They are currently working with other faculty in the Chemical Engineering Department to extend the technology to various scales and for other compounds.

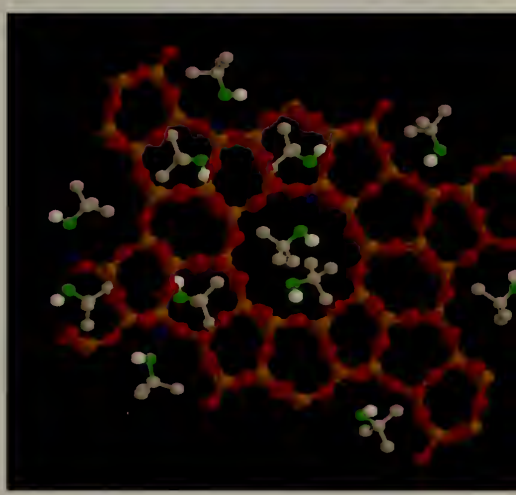
With help from associate professor Nikolas Kazantzis and assistant professor Jennifer Wilcox, Thompson and Bergendahl are exploring ways to custom design zeolites that are perfectly matched to specific organic compounds. These "designer sorbents" should be far more effective at soaking up the compounds than any current technology, Thompson says.

The organics removal and oxidation work is one of the first projects to come under the umbrella of a proposed Water Research Center, to be part of the university's Bioengineering Institute in recognition of the diverse strengths of WPI's water-related research and the fundamental importance of a safe, clean water supply to public health, Thompson says.

"We're in a building phase," he says. "Our initial researchers have a track record of collaborating and publishing together.

"As we move forward," he continues, "we'll be looking to broaden the scope of the center, bringing in additional faculty and additional areas of expertise. We are also actively seeking support from corporations, foundations, federal agencies, and individual alumni who may have an interest in or applications for the technologies we are developing."

For more information about BEI, as well as its faculty and their research, visit www.wpi.edu/+BEI.



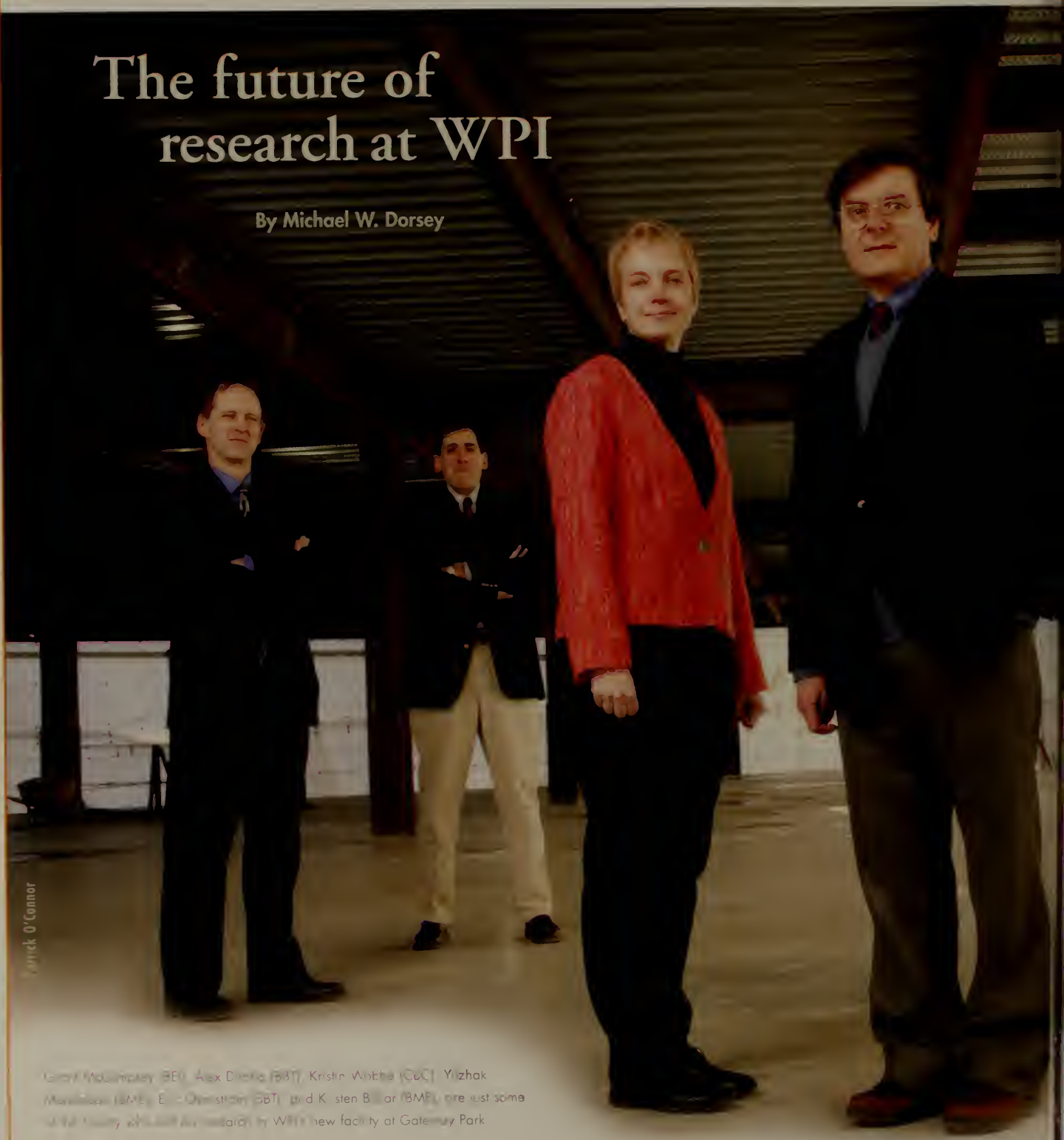
Above: Simulation of tertiary butyl alcohol adsorbed in the open nanopores of a high silica zeolite. The pores are ideal for filtering out toxic organic molecules found in water. Simulation courtesy of Ozgur Yazaydin, chemical engineering graduate student.

Top: Assistant professor Jennifer Wilcox and professor Bob Thompson (forming model zeolites) are collaborating to best filter harmful organics out of water, while associate professor Jeanine Plummer is using sonication to destroy parasites in water.

Creating sy

The future of research at WPI

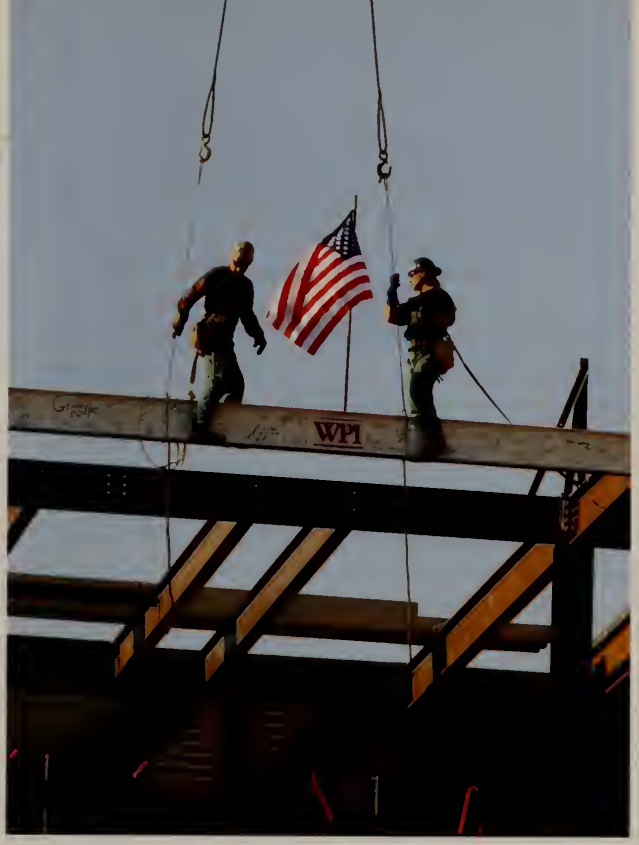
By Michael W. Dorsey



Patrick O'Connor

Carol Mazzeo (BE), Alex Dimitrov (BBT), Kristin Wobbe (CoC), Yitzhak Mastbaum (BME), Eric Oberstrom (BBT), and Kirsten Baldor (BME) are just some of the faculty who will do research in WPI's new facility at Gateway Park

nergy



Dan Vaillancourt

The new **WPI Life Sciences and Bioengineering Center** is designed to encourage collaboration across key disciplines and produce the kind of synergy—and even serendipity—that can lead to innovative areas of research and development.

While the image of the lone scientist lives on in Hollywood movies, science now is almost exclusively a team effort. The challenges that today's scientists tackle are highly complex and multidimensional. More often than not, expertise, ideas, and technology from an array of disciplines are needed to find answers; it takes other players, from engineers to entrepreneurs, to translate those answers into life-changing products and processes.

On a parcel of former industrial land near downtown Worcester, the university is putting this new scientific paradigm into practice with the WPI Life Sciences and Bioengineering Center, a 124,600-square-foot, $40 million complex. Scheduled to open in early 2007, the four-story structure is the embodiment of two strategies for the future: investing in the development of WPI's home city, and fostering the growth of life sciences education and research at the university. On the economic front, the center is the first new structure to rise within the larger Gateway Park complex, an 11-acre life sciences–based campus that WPI is building with the Worcester Business Development Corporation *(see page 23)*.

The new building "is a significant step forward for WPI, for our partnership with the WBDC, and for the city," President Dennis Berkey said in June 2005, as ground was broken for the new facility. "Locating our life sciences and bioengineering research and graduate education programs here in state-of-the-art facilities will bring an important scientific core to this development, which will enrich WPI's educational efforts and attract potential collaborators to the site, both academic and corporate."

On the academic side, the center will give WPI an enhanced presence in a field that promises to drive the future of education, business, research, and innovation. "Next to defense, the life sciences represents the biggest chunk of money the government awards for research," says W. Grant McGimpsey, director of WPI's Bioengineering Institute (BEI). "Its importance can only grow, driven by an aging population and ever-increasing requirements for new therapies, new treatments, and new medical devices."

"We've got the people, we've got the enthusiasm, and we've got the expertise," adds Carol Simpson, WPI's provost and senior vice president. "As an institution, we can't sit back and let that wave of research sweep by us."

To catch the wave, many universities have invested in life sciences and medical research centers in recent years. WPI's approach to creating such a center should set it apart, Simpson says. "We will have a true life sciences and engineering group with strengths that most life sciences programs don't have," she notes. "Most research-intensive universities have biologists and biochemists, but they don't have many researchers who think about the engineering side of the life sciences—about making products, and about the innovation and entrepreneurship involved in getting those products to market.

"The WPI experience that we instill in our students—to recognize the social component of our work, to take our research and apply it in some way—is also part of the faculty culture," Simpson adds. "That transition between the pure and the applied is something we do very well. There aren't many universities, honestly, that can do this."

The faculty who will call the new center home will come from four departments: Biology and Biotechnology,

Here's a quick look at the major interdisciplinary research groups that will share space in the **WPI Life Sciences and Bioengineering Center.** The researchers come from the departments of Biology and Biotechnology (BBT), Biomedical Engineering (BME), Chemistry and Biochemistry (CBC), and Chemical Engineering (CHE), as well as from the Bioengineering Institute (BEI).

Tissue Regeneration and Stem Cell Biology

Who David Adams and Eric Overström (BBT); George Pins (BME); affiliated faculty from University of Massachusetts Medical School

What Developing bioengineered scaffolds on which soft tissue can be grown, laying the groundwork for growing tissue from a patient's own stem cells; developing improved methods to isolate and grow stem cells; genetically engineering new drugs for stroke.

Why Engineered cells/tissue can repair or replace damaged skin and other tissue more successfully and naturally than grafts.

Tissue Mechanics and Mechanobiology

Who David Adams (BBT); Kristen Billiar and George Pins (BME); affiliated faculty from Mathematical Sciences and UMass Medical School

What The group studies how mechanical forces—stretching, for example—affect, or can be necessary for, proper growth and healing of connective tissue.

Why Artificial heart valves wear out; replacement valves from pigs can be rejected. A properly designed—and mechanically stimulated—artificial valve may last for life.

Plant Systems

Who Alex Dilorio (BBT, Bioprocess Lab, and BEI); Pamela Weathers (BBT); Jose Argüello and Kristin Wobbe (CBC)

What Studying mechanisms plant cells use to transport metal ions across their membranes; uncovering techniques plants employ to defend themselves against pathogens; developing techniques for enhancing the production and recovery of valuable chemicals made by plants.

Why Understanding plant resistance mechanisms could reduce the need for pesticides; enhancing production of artemisinin, a potent anti-malarial agent produced by the wormwood plant, could help combat this global scourge.

Researchers and graduate students will work side by side with others who are tackling similar problems, but from different directions or with different techniques.

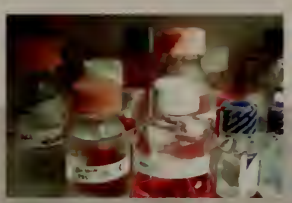
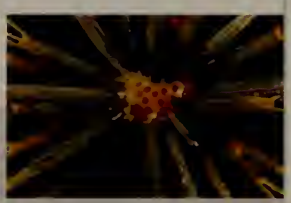
Biomedical Engineering, Chemistry and Biochemistry, and Chemical Engineering. They will bring with them a wide array of interdisciplinary research programs, many of which bridge fundamental investigation and practical application.

The center will also house the Bioprocess Laboratory—which conducts applied research for biotechnology companies—and BEI, an interdisciplinary research and development organization. With its seven centers, comprising faculty from nine science and engineering departments, BEI is dedicated to developing cutting-edge life sciences–based technology, and finding ways to turn it into new products and enterprises.

"Putting the researchers who are developing the technologies in the same building with BEI will give us the opportunity to match new ideas, even before they are fully formed, with entrepreneurs and investors who may have the interest and ability to bring them to market," McGimpsey says. "That's very exciting."

Some of those new ventures, he notes, may become tenants in the new building, or in the three other structures that will eventually be built at Gateway Park. They'll join other companies that will choose to locate at Gateway to be close to WPI's life sciences research group and BEI. "We see this new center as the signature building for Gateway Park," Simpson says, "a facility that will attract related companies and interests to the area."

For the departments that will transplant their graduate research programs, the new building offers a host of advantages. First is the lure of new space, expressly designed and outfitted for modern research in the life sciences. A new facility dedicated to research will give departments added leverage as they search for new faculty members, notes Eric Overström, head of the Biology and Biotechnology Department. "We are seeking to hire mid-career faculty who already have resources and support," he says. "They will bring immediate presence and

Molecular Nanotechnology and Molecular Sensors

Who Christopher Lambert (BEI); Grant McGimpsey (BEI and CBC); Terri Camesano and Susan Zhou (CHE); James Dittami, John MacDonald, Venkat Thalladi (CBC)

What Creating devices with surfaces that have precisely engineered physical and chemical properties for sensing and other applications; studying bacteria at the molecular level to learn how to prevent harmful biofilms from forming on medical devices.

Why Tiny devices with engineered channels and pores may become implantable labs that can monitor blood chemistry and transmit the results as needed.

Applied Molecular Genetics

Who Lauren Matthews, Sam Politz, Reeta Prusty, Elizabeth Ryder (BBT)

What Studying the genetic mechanisms a tiny nematode uses to evade its host's immune system; uncovering chemical signals that switch fungi from benign to pathogenic mode; understanding the molecular basis for ecological adaptation by shrimp and other crustacea.

Why Fungal infections are notoriously difficult to treat; new drugs that exploit these chemical signals may work far better than current medicines.

Advanced Technologies in Biological Imaging and Sensing

Who Yitzhak Mendelson, Christopher Sotak (BME); affiliated faculty in the BEI Center for Untethered Healthcare (BEI-CUTH); James Duckworth, Reinhold Ludwig, William Michalson, and Peder Pederson (Electrical and Computer Engineering); and John Sullivan (ME) work on this research, but will not relocate to the new center.

What Through BEI-CUTH, developing noninvasive optical sensors that can monitor vital signs and transmit them wirelessly; in the MRI (magnetic resonance imaging) lab, developing advanced techniques for detecting stroke and seeing how it responds to therapies; in the ultrasound lab, developing portable 3-D ultrasound for diagnosing injury.

Why Wireless physiological sensors may enable doctors to monitor patients at a distance, improving the quality and lowering the cost of health care.

Putting a significant number of people together under one roof to work on the same general theme creates opportunities to develop new projects and new areas of research.

prestige, but you can only attract them if you can show them a facility like this."

New recruits and existing faculty researchers will benefit from sharing a building with researchers from multiple disciplines. "Putting a significant number of people together under one roof to work on the same general theme creates opportunities to develop new projects and new areas of research, and an enormous opportunity to go after major funding," McGimpsey says. "In fact, almost all of the projects currently funded by major federal agencies are multidisciplinary projects."

The Life Sciences and Bioengineering Center is expressly designed for collaboration. The center is actually two buildings linked by a connecting structure. A former industrial building will house faculty offices, with space available on the first floor for tenants. A new building will have laboratories, shared research facilities, and some tenant space. Conference and break rooms will be located in the connector.

The lab space of open bays with rows of benches will be allocated based not on department affiliation but according to research interest area. Researchers and graduate students will work side by side with others who are tackling similar problems, but from different directions or with different techniques.

In addition to lab benches, each wing will have small offices for graduate students, shared equipment, and specialized facilities, such as warm and cold rooms, tissue culture rooms, a microscopy suite, and facilities for laboratory animals. Space in the lower level has been allocated for a magnetic resonance imaging (MRI) research laboratory.

Planning is already under way to determine how best to reuse the space that will be left vacant by the move. Goddard Hall is likely to house an undergraduate life sciences education center—with teaching labs in biology, biochemistry, biomedical engineering, and biotechnology—while space in Salisbury Labs may be used for new classrooms and offices—both in short supply on campus.

What is not lacking at WPI these days is enthusiasm for the Life Sciences and Bioengineering Center and for the statement it makes about WPI's future. "It's a very focused point that we can look to," Simpson says. "The building, the commitment of WPI to put money into it, the commitment of the faculty to pick up and move their labs there—all that is a reflection of the fact that we are moving ahead in an area that will really bring a great deal of recognition to the university." ■

Gateway Park, a potentially $250-million, 11-acre mixed-use life sciences complex, is just one of o number of high-end development projects downtown—including CitySquare, o new courthouse, and o new Hiltan hatel—poised to turn araund a city that hos struggled ta find its rhythm.

Indeed, the ecanomic development drivers in central Massachusetts agree: Warcester is o city on the mave. Haw else da yau accaunt for oll the cranes dawntown? Or the $1.3 billion that develapers ore pouring inta the city's numeraus ongoing projects?

"The mognitude of this investment, both public and private, signifies the renewol ond rebirth of Warcester," says City Manager Michael O'Brien. "These projects reveal o new sense af cammunity pride and confidence."

"Gateway Park is a piece of the much lorger puzzle," odds David Farsberg, president of the Worcester Business Develapment Corporatian. "What excites me most is thot it's not just gaing to be o biatech pork, but the building of o community, bosed in the life sciences."

Gatewoy Pork, a partnership between WPI ond the WBDC, oims ta recloim the region by turning brownfields into stote-of-the-art life sciences facilities. "The fruits of Gatewoy Pork will be more than jabs ond reol estate impravements," soys President Dennis D. Berkey. "The reseorch ond groduote troining carried out in its focilities, ond the collaborotive relotionships developed across constituencies in this park, will strengthen our labor force, fuel our life science campanies, and enhonce WPI's research capabilities."

Located an o porcel of land thot previously housed some of the city's old factories, Gotewoy Park is o tronsitian to the region's future, as well os o fitting tribute to the post.

"It will be o ploce where life-changing odvonces in science and medicine will meet the precisian monufocturing aur city has lang been known far," soys U.S. Rep. James P. McGavern.

The Life Sciences ond Bioengineering Center at Gatewoy Park will creote on estimoted 300 jobs ond will provide the city with more thon $250,000 in tox revenue, o significant increose over the taxes collected on the vacant building. The spoce, locoted at 60–68 Prescott Street, will primorily hause the WPI Bioengineering Institute and other university programs. Additionol life sciences–related companies will alsa accupy the new building.

"Placing our reseorchers alangside these businesses will create o dynamic synergy in the area," says D'Anne Hurd, vice president far business development at Gatewoy Park and WPI's generol counsel.

Hurd—whase backgraund includes a number af VC-backed technalagy and biatech campanies—began her new WPI past earlier this year. She is respansible far attracting tenants and ather portners to Goteway Pork. "We are simultoneously investing in the future of the life sciences field ond the economic vitolity of Warcester," she soys.

The portnership between WPI ond the WBDC represents a notionwide trend in which universities ond their hometown cities are seeking creative ways to work tagether. "We're all in this together," says Steve Hebert '66, university vice president. "This hos been o win-win for everyone—for the WBDC and WPI, for Gotewoy Pork LLC, ond for the city ond stote."

In fact, the praject has already garnered recagnitian. In June, the Environmental Business Cauncil af New England will present its Brownfield Project of the Year Award ta Goteway Pork.

The Life Sciences ond Biaengineering Center comprises o piece of the larger Gateway Park. Once campleted, the camplex will include housing, shaps, and restaurants. Most impartant, it will pravide jobs—an estimated 2,500—that will create residual ecanamic octivity.

"Gotewoy Park is important far the transitian to the new [biotechnalagy] industry," says Worcester Regianol Chamber af Cammerce president Richard Kennedy '65. "I came fram a traditianal industry backgraund, and thase types af jobs just aren't here anymore."

Through Gotewoy Pork and the ather develapment projects, city officiols hope to keep ane af Warcester's biggest assets: its 30,000 college students. "As the ecanamy changes, businesses wont to be where there are well-trained, well-educated peaple, af which we have a plethara," soys Mayar Timothy Murray. "We want ta market that and build upan it."

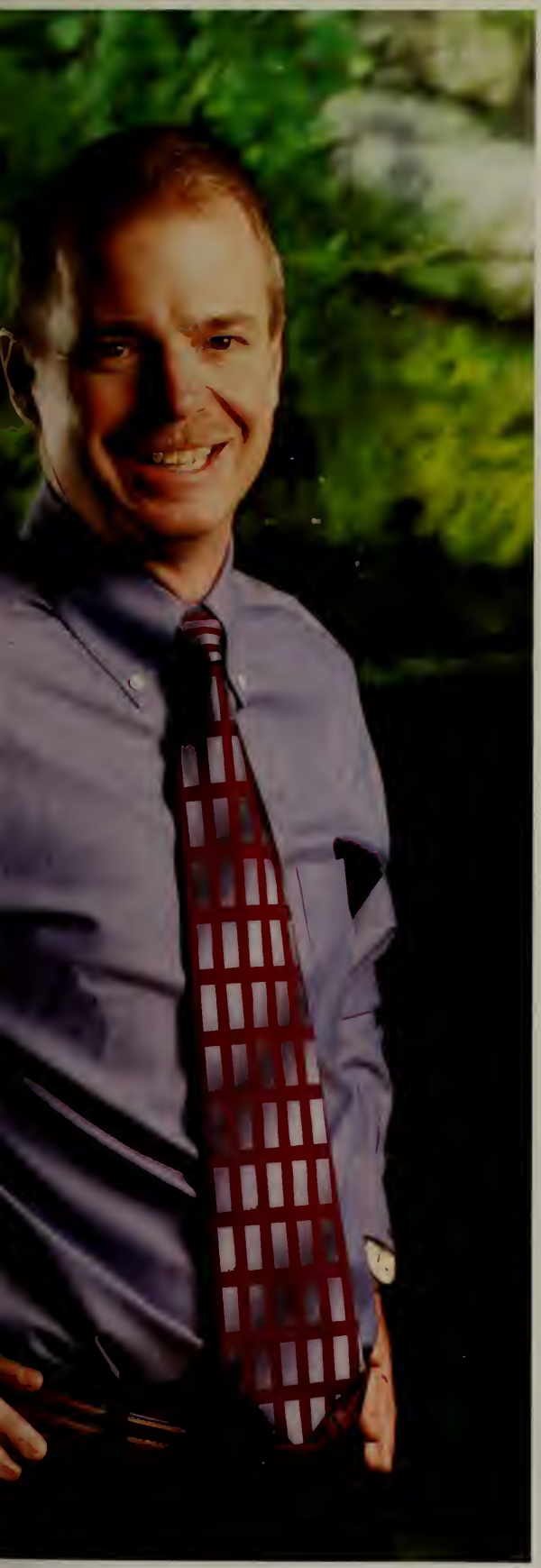
The praject will alsa saften an area that, until recently, has been heavily industriol. By putting a new face on the entry point ta Warcester, many peaple (140,000 cars drive along Interstate 290 every day) will begin to see a revived city. "People ore used ta seeing the backs af ald buildings," says state Sen. Edward Augustus. "But naw they will see a very different picture af Warcester. They'll see mare madern buildings with glass, green space, and hausing. It's gaing ta give Warcester a different kind af aura." —*CW*

Tapping Solutions

By Eileen McCluskey

Access, or lack thereof, to good, clean water is reaching global crisis proportions. Each month, 200,000 people in developing nations die from water-borne diseases, many of which are preventable. Through their different approaches, George Oliver '82 and Dean Kamen '73 share the same sense of urgency to solve this worldwide problem.

▲ George Oliver soaks up the view at the Atlantic Salmon exhibit at the New England Aquarium in Boston.



{ Photography by Patrick O'Connor }

They come to the issue from different backgrounds, yet Dean Kamen and George Oliver are working toward the same goal. Kamen, founder of DEKA Research and Development Corporation, takes the one-on-one approach. His solution to the water scarcity problem comes in the form of a 225-pound purification system, which, through innovations closely guarded by DEKA, can be operated and maintained by anyone. Though it is still under wraps as DEKA finalizes its entry to market, this black box takes vapor compression distillation technology, like that developed for submarines, to a small scale with greatly improved efficiency over traditional distillation.

Photo courtesy of DEKA

"This technology can enable financial and social change in the developing world," says Kamen, who holds an impressive track record for inventing products that take off—some literally. Perhaps his best-known invention is the Segway® Human Transporter. Kamen also invented the INDEPENDENCE® iBOT® 4000 Mobility System, a wheelchair that climbs stairs and traverses uneven terrain.

Kamen envisions water entrepreneurs across the developing world, armed with the DEKA box, making a decent living by selling water in their villages.

"We could wait decades for the developing world to build all the necessary infrastructure," Kamen says. "Or, you can take this box, put the hose on one end into anything wet, no matter how toxic or dirty, and out comes pure, clean water."

Oliver, meanwhile, comes to the issue via large-scale tactics. The president and CEO of GE Infrastructure Water & Process Technologies has spent the last four years expanding the corporation's water scarcity-related business, mainly through acquisitions of leading water purification and processing companies. GE's strategy encompasses the global proliferation of purification technology that turns seawater into fresh water, as well as the broad adoption of technologies and practices to greatly reduce and reuse industrial wastewater.

"We're moving fast," Oliver says. "We have engineers on the ground in more than 50 countries, and are operating well over 200 industrial water and process treatment plants."

At a leading water-treatment and processing company, GE's strategy encompasses the global proliferation of purification technology, that turns seawater into fresh water, as well as the broad adoption of technologies and practices to greatly reduce and reuse industrial wastewater.

But can Oliver, Kamen, and the world's concerned nations move quickly enough? Some experts have warned that, with dwindling supplies and burgeoning populations, nations may start fighting over water much as they do now over oil. In the Middle East, for example, Israelis and Palestinians draw upon shared aquifers for their water. Both groups have legitimate claims to the water, but as demand outpaces supply, experts question whether the area will succumb to further conflict, or if the groups will be able to peacefully resolve their differences.

But history does not support water war theories, says Marcia Brewster, senior officer with the United Nations Department of Economic and Social Affairs' Division for Sustainable Development. "Historical evidence shows that human beings have generally demonstrated a willingness to cooperate on sharing water, even between nations fighting over other political issues or, for that matter, over gold and other precious resources," she says.

The notion of water becoming the next oil, simply doesn't hold she says. "The two are very different issues. We know, for example, that oil has substitutes. But there is no substitute for water. Access to safe water is widely recognized as a basic human right."

Currently, more than 1 billion people lack access to safe drinking water. Another 2.6 billion people, about 40 percent of the world's population, lack access to basic sanitation. "And we are not talking about taps and toilets in every home," says Brewster, who spoke at WPI's Water Management Challenges and Solutions conference in June 2004.

Indeed, the World Health Organization defines adequate access as just 20 liters—five gallons—per person per day, within one kilometer walking distance from the home. Compare this modest requirement to typical household water consumption in the United States, which averages 74 gallons per person per day.

Last year, the U.N. launched an international "Water for Life" decade, calling on the international community to redouble its efforts to make safe drinking water and sanitation available to everyone. U.N. officials hope to halve the proportion of people without access to these two basic needs by 2015.

Of course, it would be better if water supplies were accessible in the first place. GE sees two major ways to ease the water shortage now, and solve it in the future. "Our strategy is to desalinate seawater to supplement the supply of fresh water," says Oliver. "At the same time, we're working to better manage existing supply."

Typically, Oliver notes, industries waste 80 percent of the water they use. To urge its customers toward increasingly efficient water consumption, GE publicly recognizes industrial clients, via its Ecomagination awards, when they achieve considerable savings. Ford Motor Company, for instance, won a 2005 Ecomagination award. Using a GE antifoaming agent during its discharge process, Ford reduced water consumption by 230,400 gallons per year at its Kentucky Truck Plant in Louisville.

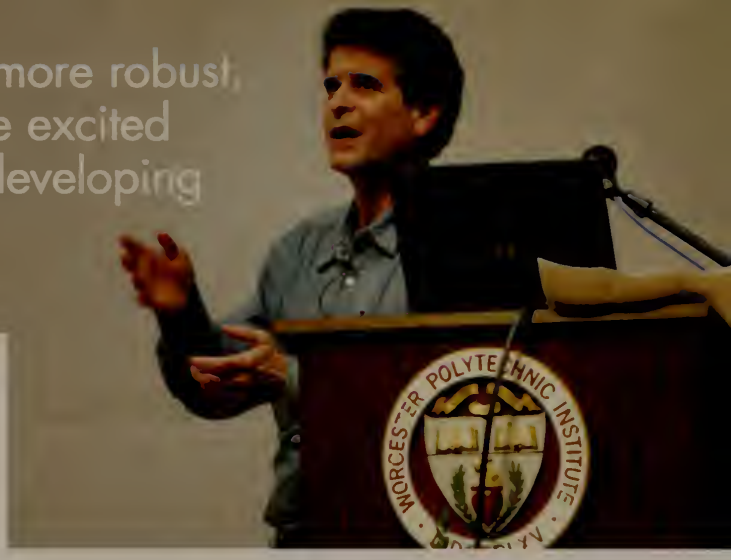
GE has also plunged into desalination technology to swell available water through reverse osmosis (RO) technology.

RO has been around since 1959, but the polypropylene membranes at the heart of the process have rapidly evolved. Through recent acquisitions, GE Infrastructure Water & Process Technologies is demonstrating the corporation's commitment and confidence in desalination as the wave of the future.

Using reverse osmosis, high-pressure pumps push seawater or brackish water across the membranes, which remove contaminants down to the ionic and molecular levels—from salts and sugars to bacteria and viruses.

Though highly effective—RO removes more than 99 percent of contaminants—the technology's spread has been hindered by high energy consumption and waste water levels. "In the typical desalination plant today," Oliver says, "50 percent of operating costs go to the energy it takes to pump the water across the membranes." RO recovers only 5 to 15 percent of the water entering the system.

"As the technology has grown more robust, I have become more and more excited about its ability to help solve developing countries' water shortages."



For now, this process is attractive only in the Middle East, where electricity is inexpensive. A GE-engineered and -operated RO plant in Algeria, for instance, slated to go online in 2007, will supply the city of Algiers with 25 percent of its water.

While GE runs plants like the one in Algeria, "We expect to accelerate the technology's advancement by continually leveraging our materials science expertise," Oliver says.

Ramesh Rengarajan, general manager of GE Global Technology, works on desalination's front lines. In the coming decade, "desalination processes will see 20 percent greater efficiencies, and will be cost-efficient even for energy-expensive regions," he predicts. "New chemistries, new materials science, and new molecular structures will reduce pressure requirements for RO membranes." Pumps, too, will grow more efficient, while reduced friction and recaptured pressure will lower necessary energy levels. "The emerging membrane designs, engineering designs, and technologies will drive significant energy savings and reduce the waste discharge. This will put RO technologies ahead of traditional methods in use today."

For DEKA's little black box, however, energy consumption is not the issue. The water purifier processes 10 gallons of water an hour using just 600 watts, or less than 3 percent of the electricity required for traditional distillation.

This efficient purifier will weigh just 225 pounds when it's released, so that a couple of reasonably strong individuals should be able to haul it to the nearest water source. It should also be relatively affordable and durable, Kamen says. DEKA estimates its manufactured cost will be about $1,000, while preliminary tests indicate a five-year life in the field.

"The remaining questions are social and political," says Kamen. Also electrical. The box, though no energy hog, needs an electrical outlet to run. This fact will place some limitations on its use in developing countries, although, according to DEKA, many poorer nations have more reliable and widespread electrical infrastructure than they do clean water. Kamen remains steadfast: "We need to get this into people's hands."

To that end, says Kamen, "We've met individuals who think this is worth a shot. We've assembled a 501(c)(3) organization, and we're receiving serious support from some well-recognized global leaders. We expect to roll out this new technology, and test out the idea by summer 2006."

While their approaches differ, both Oliver and Kamen see hope for the world's water ills. For Kamen, the ability to place pure water technology in the hands of individuals increases by the day. "As the technology has grown more robust, so that it can handle any type of water," he says, "I have become more and more excited about its ability to help solve developing countries' water shortages."

"The water crisis absolutely can be solved," Oliver declares. "In the four years I've been building out GE's water scarcity business, I've seen awareness of the issue expand tremendously. When we recognize the problem, we converge around the problem to solve it. Increasingly, ways to reuse, reduce, and recycle will become the infrastructure, rather than an afterthought."

Brewster, too, looks toward the day when such responsibility is the norm. The current crisis, she says, "is preventable, if we begin now to respect water and stop wasting it. We need to place basic human needs at the top of the priority list. Then we can accomplish great things." ■

2.6 billion people lack access to basic sanitation

7 million people die each year from water-borne diseases

1.5 billion people lack access to clean water

74 gallons of water is the average amount consumed by each American, per day

5 gallons is the amount of water a person needs per day, as determined by WHO

1 percent of Earth's water is drinkable

Who's Watchin

By Joan Killough-Miller

[Photography by Patrick O'Connor]

Worcester Water Fact Sheet

Konstantin "Dino" Eliadi '72 ('81 MS, '87 MBA), Director of Water & Sewer Operations, Worcester Department of Public Works

Philip Guerin '82, Director of Environmental Systems, Worcester DPW

Responsible for

- 23 million gallons of water delivered daily to DPW customers
- 10 surface reservoirs (7-billion-gallon capacity)
- 41 square miles of watershed area
- 50-million-gallon daily capacity treatment plant

Bottle or Tap?

- Eliadi refills a Poland Springs bottle with Worcester tap water.
- Guerin drinks Worcester water, but says, "My neighbors warn me not to touch it, or even shower in it!"

In an old brick building on East Worcester Street, just off Shrewsbury Street, Phil Guerin '82 and his boss, Dino Eliadi '72, work to safeguard Worcester's drinking water. They do daily battle against the usual challenges: microbial pathogens, chemical contaminants, water main breaks (old hat, to them), and the occasional phone call about "funny-looking" water. They also face newer pressures—from real estate developers, environmentalists, terrorists, and an increasingly vigilant public.

Eliadi calls water the "blue collar" of utilities. "People don't flinch at paying $30, or even $50, a month for cable TV. But water is their most important utility. They think you just turn the tap and it comes out," he says. "You could find ways to live without electricity, and surely without cable. Water, there's no option. You have to have water."

Guerin, a buff of Worcester's rich industrial heritage, says, "The roots of the water profession are on the construction end. Back then, you fixed the leaks and made sure the water was flowing. Water quality and public education weren't on anyone's agenda. It was a 'silent industry.' The less people knew, the better."

Today the picture has changed, with vigorous daily testing and mandatory reporting to consumers. "Our ability to find things in the water today is far ahead of our ability to understand what those things may mean for public health," Guerin elaborates. "The big challenge for water systems now is trying to get the public to understand that just because we detect 1.5 parts per billion of this or that doesn't mean it's anything new—or that it's causing anyone any harm."

Safe Water

"We have people who swear that back in the 1930s, Worcester water was the best in the world," Guerin says. "Looking back, we know that there were certainly bacteria, viruses, and parasites swimming in it, but no one knew about those things."

Those who bad-mouth Worcester water today may be recalling the past, when excessive bacterial levels made headlines, and local water was banned on train routes and airplane flights out of Worcester. Ever since the city's new treatment plant in Holden went into operation in 1997, advanced disinfection processes have reduced the need for chlorine while improving protection against microorganisms. The result is safer, clearer, better-tasting water.

"What comes out of the tap now gets compared to bottled water," says Guerin. "If it's not as clear as Poland Springs, we hear about it."

The general public, Guerin says, has high expectations for its water. "At the same time, people don't expect that they should have to pay for it. They see it as something city government should be providing," he says. "The reality is, it's a very fair system: You use it, you pay for it." Local residents pay about $0.003 per gallon for their water, or, Guerin estimates, approximately $200 annually.

Part of the problem is that people don't realize what it takes for water to get from a reservoir to their homes, contends Eliadi, citing maintenance and upkeep costs from the treatment plant, the collection of samples for testing, and the repairing of main breaks, for example. "Yes, the end result is

our Water?

Dino Eliadi '72 and Phil Guerin '82 (pictured at the Holden Water Treatment Plant) explain what it takes to keep Worcester water drinkable, plentiful, and affordable.

that you turn the spigot and you have water, but all the prep time that goes into it should not be taken for granted."

The industry does not take the work of these alumni for granted. In December 2005, the Massachusetts Water Works Association honored Guerin with its Special Achievement Award, and Eliadi with the Paul F. Howard Award.

Modern demands, antique infrastructure

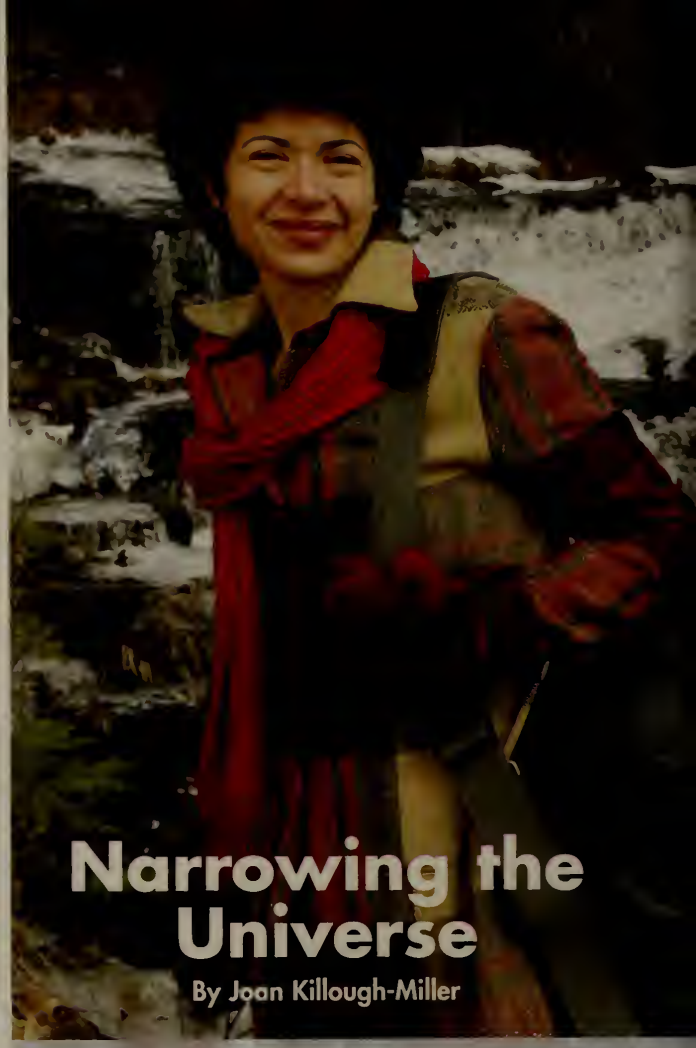
Dating back to 1848, Worcester's public water system now includes 500 miles of pipes supplying 200,000 customers. "We have some underground pipes from the 1870s that are still in use," Guerin notes. In the mid-1980s, the water department converted to an "enterprise" system, and must now finance its operations solely with water bill revenues. "I think the cost of water is becoming a big issue," he says, "not so much the consumer price, but the towns' ability to keep their water systems operating."

Water safety begins at the source, and suburban sprawl can pose threats to Worcester's remote reservoirs. "You have developers in surrounding towns eyeing the watershed—which they see as empty acreage—and drooling," says Eliadi. "We have to compete against them, either through conservation restrictions or by buying the land outright. Last year we spent over $2 million to buy huge tracts of land. It's money well spent for us, because it guarantees nothing's going to be built, no septic systems are going to be there, and it prolongs the purity of the water. Just because you have a treatment plant doesn't mean you don't need some buffer."

Worcester already had fences and No Trespassing signs in place well before the passage of the Bioterrorism Act of 2002, Guerin notes, and new security measures monitor any irregularities. *(See page 14 to learn about two alumni involved in a start-up venture to monitor municipal water facilities.)*

Eliadi is nostalgic for the good old days, when "you only had to worry about the guy who used to fish in the reservoirs, and kick him out of there." He harks back to a time when the department used to distribute student handouts with detailed infrastructure maps to schoolchildren who came in looking for help with homework projects. These days, Worcester's federally mandated vulnerability assessment report is closely guarded. A single copy was hand delivered to the EPA, where it rests in a locked vault.

Another change is a shortage of qualified engineers interested in safeguarding the local water supply. "Some might not see it as a high-profile, exciting way to make a living. But the problem solving we do is critically important to everyone's health and safety, and to the economy of the city. It touches every aspect of everyone's life," Guerin says. "The interesting—and difficult—part is, you can't be in the pipes to see what's going on. You've got to collect samples and data to understand what's happening. Once you're in the field, you can actually see where there's real application of those equations that you learned at WPI." ■



Narrowing the Universe

By Joan Killough-Miller

There are millions of molecules in our water. Which ones should we worry about?

Inspired by a breaking news story in the early 1980s that revealed a leukemia cluster in Woburn, Mass., Jo Anne Shatkin '85 was moved to help people understand how environmental threats could affect their well being. Her IQP analyzed the quality of bottled water, using research conducted in the Worcester DPW laboratory of then recent WPI graduate Phil Guerin '82 (see page 28).

Shatkin's commitment to public safety and awareness continues today with her work at Watertown, Mass.-based The Cadmus Group, where she consults with private and government agencies to assess the human health risks of environmental contaminants. Much of her time is spent providing technical support for the EPA's drinking water Contaminant Candidate List (CCL), to determine which contaminants warrant further study for possible regulation. As an adjunct professor in the Interdisciplinary and Global Studies Division, Shatkin has advised student project work to identify health hazards in the Worcester community.

What is the significance of the CCL?

We're trying to identify, and narrow the universe of, potential drinking water contaminants. We then decide which ones are the most important for the EPA to invest its resources in. The chemical universe includes hundreds of thousands of manufactured chemicals. We follow a similar process for biological contaminants, working with a team of expert microbiologists to agree upon a methodology for deciding how to effectively prioritize among microorganisms.

The CCL is published every five years. It directs the EPA's drinking water research for the coming years. Every five years we develop a new list, but we may not necessarily be able to walk away from the prior list. It's a substantial commitment, when something winds up on the CCL. [The EPA then carries out studies to develop analytical methods for detecting the contaminants, determines whether they occur in drinking water, and evaluates treatment technologies to remove them from the water. —Ed.]

What is risk analysis, and how do you use it to narrow down the data?

Risk analysis is a relatively new field that gathers and analyzes information to evaluate how things behave in the environment, and their potential to impact our health or our environmental quality. For drinking water, we look to see what could cause adverse health effects and the contaminants that have the potential to occur in water; from there, we build a database of the available information. Then we come up with criteria to prioritize among them. We also consult a range of experts in the field, to compare the results and evaluate how well our models worked. Risk assessment is a tool that helps frame a variety of issues for environmental decision making, not just for drinking water. It can be applied to new technologies, such as nanotechnology, as well as decisions about site usage, such as brownfields, and biological issues.

What are some emerging issues in drinking water safety?

There are recent developments, for instance MTBE (methyl tertiary-butyl ether, a gasoline additive meant to replace lead), which is not highly toxic, but is very mobile. There are naturally occurring substances such as arsenic, which is a carcinogen. There's quite a bit of arsenopyrite, or "fool's silver," in New England's bedrock. There are also localized issues related to the region's role in the Industrial Revolution. However, when we compare the potential for chemicals versus microbiological contaminant occurrence, pathogens become significant concerns, particularly in developing countries where water is less adequately controlled.

How safe is our drinking water, overall?

I think people worry about their drinking water too much. The water quality in the United States is high. The systems are very tightly regulated. Not that there aren't issues in some areas. People worry about tiny levels of things in the environment, when there are big issues in front of them that they could do something about. For example, they might worry about the one-in-a-million risk of getting cancer from low-level pesticides in their water, but continue to smoke cigarettes. Here in New England, our water sources are local, so we have much more control over them than other regions do.

Do you drink tap water?

I do. Millions of dollars are spent to treat it. Why should I buy it and haul it home from the grocery store? I do have a filter on my tap, to filter out lead, which can come from the pipes. Municipal drinking water is more regulated than bottled water. I'm never afraid to drink tap water. Sometimes it doesn't taste great, because they put chlorine in it, but in Worcester, where there's ozone treatment, the quality is excellent.

Reaching Out to Water-Stressed Countries

By Joanne Silver

Water in many parts of the world has become a fragile commodity. The work of Philip Giantris '65 addresses the global need for good, clean, accessible water for all.

No wastewater is too murky, no infrastructure too fragile, and no bureaucracy too clogged for Philip Giantris to seek a solution. He has led training programs in Indonesia on water, wastewater, and solid waste management. In Egypt, he conducted an assessment of the Cairo General Organization for Sanitary Drainage. From Kosovo and Montenegro to Jordan and South Africa, he has aided governments and utilities in improving water systems. At the Water Africa '99 conference, held in Cairo, Giantris spoke about Water for All, South Africa's program to increase private sector participation in the delivery of water supply and sanitation services. Despite the decidedly unglamorous title, the subject gets to the heart of a situation that is approaching crisis proportions throughout the globe. It has been estimated that, for a billion people, this essential resource is compromised—either unavailable or filthy enough to cause serious illness.

"On today's course," Giantris explains, "we are headed for some major water-based catastrophes in the underdeveloped and developing world. We may see incidents of water system failures that will cause deaths in the tens of thousands. The movement of populations from rural to urban or peri-urban areas in the developing world continues at a rate that is not understood in the Western or developed world. The estimates are one million people per week. It is straining water supply systems around the world, and at the current rate of capital investment is a recipe for disaster."

Belief in the global necessity for good, clean, accessible water motivates Giantris in the work he does. During the past four decades, he has combined his passion for water with what he learned at WPI and Boston University, where he earned his M.B.A., to tackle a wide range of projects. Numerous American municipalities, as well as a dozen countries scattered over four continents, have benefited from his expertise. Through his company—Valu Add, a small consulting practice based in Tirana, Albania, concentrated on the water supply and wastewater sector in developing countries—Giantris is keeping his promise to his mother to give back to his family's native land. And he loves what he does. "It is not easy, but it is a dream job," the first-generation Albanian American says.

Giantris has always felt a connection to water. Growing up around the corner from the Worcester YMCA, he learned to swim at the age of 8, and competed in swimming through his college years. At WPI, he worked at the Alden Research Laboratory in Holden *(see page 48)*; although the majority of projects there involved water, Giantris recalls one particular experiment in which he tested two rectangular blocks of

Philip Giantris, at Albania's first wastewater treatment plant with the facility's director, Hysni Shamata, tackles the social and political aspects of water management.

Through his consulting firm, Giantris, seen here in Tirana's Skanderbeg Square, gives back to his family's native country of Albania.

Photography by Albes Fusha

wood in a wind tunnel to simulate the effect of wind on the planned Twin Towers in Manhattan. Even during his two-year stint in the Army, he was never far from water. In Vietnam, he served as a Port Construction officer, using some of the skills he had gained at WPI as a civil/sanitary engineering major. Twenty years at the Wakefield, Mass.–based water and wastewater firm of Metcalf & Eddy provided him with ample opportunities to explore a field as it was being transformed by new federal regulations. Now, as a resident of an oceanfront home on Southport Island, Maine, Giantris and his wife often find themselves mesmerized by the view. "As crazy as it sounds, my wife and I are like children, who, every day, see the ocean as if for the first time," he says.

Water never represented a mere technical challenge for Giantris. He has always focused on the people who are affected by the issues he addresses. "Overall," he says, "we need to better protect our resources and manage the demand for water in a more enlightened and informed way. Through our continuing disregard for the environment, we constantly strain and pollute our water resources and waste water, causing supplies to appear to be inadequate. It is a gift from God, but it is not free."

When Giantris steps in to assist with water issues, he must be fluid in his approach. The awe that he feels in the face of the ocean becomes tempered by pragmatic strategies, as he draws upon both his engineering experience and his business acumen. He says, "It is not enough today, in managing public water supply and wastewater infrastructure, to be technically accurate and operationally reliable. Water supply and wastewater utilities must also be commercially competitive and financially self-sustaining."

How does Giantris decide what approach to take? "At the simple level, it is training," he responds. "But water is much more complex than that, and therefore it requires a philosophical change in the way governments address this essential public service. It is important, when you take on an assignment, to quickly try to figure out who or what is really driving this interest. Who are the stakeholders, and what do they want out of it?"

Then the hard work can begin. Business plans can be developed, manuals written, water analyzed and accounted for, regulations reviewed, contracts prepared. The possibilities are extensive, the obstacles even more so. Philip Giantris remains upbeat. In the midst of his work in the Balkans, he thinks back 40 years and says, "I survived WPI academically through persistence—not necessarily brains—and it continues to serve me well here in Albania." ■

AlumniConnections

Morgan Rees '61 became the 62nd president of the Alumni Association during Reunion weekend last June. He and his wife, Janet, reside in Florida and Ohio. An active alumnus, Mo Rees has served as a member of his Class Board of Directors and the President's Advisory Council, as chair of his 40th Reunion Class Gift Committee, and as a Reunion volunteer. He shares his thoughts as Association president:

What are your goals for the coming year?
Volunteerism or increasing alumni involvement with WPI is one of our two principal objectives. During recent meetings of the Class Boards of Directors meeting and the Alumni Leadership Council, we discussed different ways to increase alumni involvement. A critical part of this effort is reestablishing an extensive Regional Club Program. Under the leadership of Joe Ferrantino '67 and Roger Lavallee '73, the Hartford-Springfield Club is up and running, and groundwork for other clubs is under way in New York, Washington, and southern New Hampshire. We hope to add several clubs each year. Other volunteer opportunities include participating in class activities and GOLD (Graduates of the Last Decade) events, or becoming an Alumni Ambassador to represent WPI at a high school or college fair. In the coming months, the Alumni Association Cabinet will publish a list of other specific volunteer opportunities.

Tell me about the Regional Club program.
Over the past few years, regional events have been sponsored in the Boston area, Cape Cod, Hartford, Providence, New York City, Washington, D.C., California, and Florida. Events have focused on discussions with WPI faculty, theater outings, and sporting activities. In connection with revitalizing the Hartford-Springfield club, Joe and Roger and their committee created a template for how to launch a Regional Club. Efforts will focus on four regional clubs in 2006 to allow us to refine the operating model. Anyone looking to help with these activities should contact the Alumni Office. We welcome your ideas on events and target cities.

What's your second principal objective?
Career development, support, and mentoring is an important initiative launched by the Alumni Association within the last two years. Led by Bill Krein '62, we are working to strengthen this program, which links alumni seeking new employment with alumni who have employment opportunities. It also matches those making a career change with other alums who can provide career mentoring on a confidential, one-to-one basis. Job listings are now posted in *The Bridge*, the monthly alumni e-newsletter. The response to the Career Development Program has been extremely positive and we have opportunities for many more alumni to assist us with organization and implementation.

How can alumni keep up to date on Association events?
There are a number of ways. The Alumni Association Web site, alumni.wpi.edu, is the best single source of information on alumni activities. It contains information on events, reunions, class Web sites, the organization of the Alumni Association, and more. I encourage folks to bookmark the site and visit it often. *The Bridge*, the monthly alumni e-newsletter, provides an ongoing link to WPI for alumni and friends and helps to keep them informed about association activities as well as news and events on campus. New subscribers may sign up for *The Bridge* at wpi.edu/+bridge. Right now, fewer than 4,000 alumni receive this e-newsletter. I'd like to set a goal to increase that to 6,000 by the end of 2006. We also believe in continuous improvement and strive to provide relevant information to our alumni. We have posted a survey at **alumni.wpi.edu/News/Bridge/Survey** that seeks feedback on how we communicate. The survey covers *The Bridge* and other forms of electronic communication.

How will you define the success of your presidency?
We can define success by continuing the culture of service to WPI and to all alumni that has characterized the Alumni Association leadership for many years. In my relatively brief time as an Association officer, I have been impressed with the quality and quantity of effort and dedication to WPI by the Association officers, cabinet members, and other volunteers. As long as this culture continues, the Association will thrive. In recognition of this dedicated service, we will highlight the contributions of various cabinet members in forthcoming issues of *The Bridge*. We can also define success by achieving the principal goals I described earlier. I believe these two initiatives will go a long way toward providing valuable services to all alumni and continuing the legacy of excellence at WPI.

For more information on the programs and activities listed, contact alumni-office@wpi.edu or 508-831-5600.

Happy Returns

Farmer Director of Alumni Relatians **Beth Howland** returned to WPI in February as assistant vice president for olumni relotions ond onnuol giving. She joined WPI as o senior development officer in 1998, ond wos promoted ta directar of olumni relotions in 2002. In 2004, she wos recruited ta Amherst Callege os assaciate director of mojar gifts.

Hawland's new rale is o merger af two positians, the previous directorships of olumni relotions ond of onnuol giving. She holds on ossociote's degree in medicol technology and a bachelor's degree in heolth educotion fram the University of Vermant ond o moster's in professionol higher educotion odministration from the University of Connecticut.

"I om sa pleased to be bock ot WPI. I look forword to reconnecting with aur alumni os we continue to build and strengthen aur pragrams. This is a unique community of which I am praud ta be a part."

Howlond ond her husbond, Dovid Gavin, live in Brimfield, Moss., with their belaved chacolate lab, Hershey.

"I am so pleased to be back at WPI. I look forward to reconnecting with our alumni as we continue to build and strengthen our programs."

— Beth Hawland

Spotlight on Alumni Volunteers

Paula (Fragassi) Delaney '75 choirs the Lifelang Learning Division of the Alumni Associotion Cobinet. The division's mission is to pravide troditionol ond nontroditionol leorning opportunities for alumni at all stages af life. "My gool is to work with the other divisians, particularly the Regianal Clubs, to add an educationol companent to progroms and activities," she says.

Poula's career hos kept her close ta the educotionol environment, warking in WPI's Computing ond Communicotions Center, ond ot severol area calleges. She recently become acting registrar at WPI.

"As students, whot we did here ot WPI wos leorn how to leorn," says Paula. "Now we need to pravide opportunities for continued leorning experiences for aur olumni." Tapics con ronge from career development ond graduote educatian, ta investment manogement ond retirement plonning. The Alumni College program at Reunian offers updotes on the reseorch speciolties af the WPI foculty. The divisian alsa supparts pragrams externol ta WPI, such os the RE-SEED program, which recruits ond troins olumni ta bring their science ond technology skills into middle schaal clossraoms to assist teochers.

One of Poula's priorities is ta find ways ta leveroge WPI's infarmatian technalagy resaurces ta facilitote the wark of the Alumni Assaciatian. She is exploring existing softwore pockoges to creote on online community for olumni valunteers, where cammittee members can cammunicote easily and shore dacuments. Web ond telephone conferencing ore ather technalagies that con empower olumni groups who moy be scottered oround the country.

New volunteers ond fresh ideos ore olwoys welcome. Cantoct Paula at pdelaney@wpi.edu, ar ga ta alumni.wpi.edu ond click on the Careers link to leorn more obaut Lifelong Leorning opportunities.

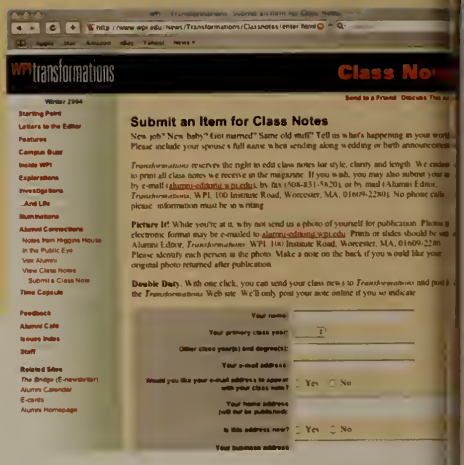
"My goal is to work with the other divisions, particularly the Regional Clubs, to add an educational component to programs and activities."

— Paulo (Fregossi) Delaney '75

Class Notes

Staying Connected with Old Friends

Material for Class Notes comes from newspaper and magazine clippings, press releases, and information supplied by alumni. Due to production schedules, some notes may be out of date at publication, but may be updated in future issues. Please allow up to 6 months for your news to appear in print. Submit your Class Note at www.wpi.edu/+Transformations or alumni-editor@wpi.edu. You may fax it to 508-831-5820, or mail it to Alumni Editor, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280.



1950s

Correction: The Duryea race car designed by the grandfather of **Clayton Roberts '50** was built in 1892, not 1842 as we stated in his class note. Thanks to **Bob Martin '39** for pointing out the error, and for informing us that the late **Richard Messinger '40** worked with Frank Duryea to restore one of the early cars for a 50th anniversary celebration.

Paul Snyder '53 was awarded the 2005 Environmental Partnership Award by the Northeast Pennsylvania Environmental Partnership. He has taken on numerous roles in retirement, including board member of the Tobyhanna Creek/Tunkhannock Creek Watershed Association, volunteer coordinator of the Stream Watch Program, and monitoring coordinator for the Northeast office of The Nature Conservancy. Gov. Edward G. Rendell wrote to Paul, "You have proven the tremendous impact that one person can have on the world, and I thank you for helping us keep Pennsylvania beautiful for generations to come."

1960s

Richard Brewster '60 represented Mercy Ships as photographer at the inauguration of Liberian President Ellen Johnson-Sirleaf. He serves aboard the Mercy Ships hospital vessel *Anastasis*, along with his wife, Ellen. They recently celebrated their 40th wedding anniversary on shipboard, by purchasing ice cream for the almost 400-member crew. He has also coordinated service projects with his local Rotary Club, bringing 500 wheelchairs to needy people in Sierra Leone, visiting Rotary Clubs all over Scotland to drum up support for the planned visit of the *Anastasis* to Dundee, and raising funds for new water wells in Monrovia, Liberia. "Our three daughters have blessed us with five grandchildren," he writes. "Retirement has been the most exciting and fulfilling time of my life!"

Jesse Erlich '62, a partner with the Boston law firm Perkins Smith & Cohen, was ranked among the top 5 percent of Massachusetts "Super Lawyers" for the second year in a row. The listings are published annually in a supplement to *Boston Magazine*. Jesse, a specialist in intellectual property, is a former president of the Boston Patent Law Association and an appointee to the United States–Israel Science and Technology Commission Task Force. He also serves on the board of the National Defense Industrial Association's New England Chapter and the advisory council of the National Institute of Justice. This year Jesse and his wife, Laura, became grandparents.

Al LaPrade '66 is chief engineer for the Mount Washington Cog Railway. His work was detailed in a recent story in *Railfan & Railroad* magazine.

Robert Sinuc '66 joined Cyclics Corp. as vice president of manufacturing. He will direct manufacturing in Germany and lead efforts to site future plants.

Pete Picard '67 retired from a 32-year career with the Federal Highway Administration in 1998. He then served as executive director of the Nebraska Concrete Paving Association. He retired in 2001 and moved back to New England. "I'm now doing a few fun retirement tasks and some consulting, but primarily assisting my wife, Nancy, with her in-home antiques and collectibles business," Pete writes.

John Trudeau '68 joined the University of California Santa Cruz Extension as director of Engineering and Technology/Business and Management Programs. His business development experience includes positions at Hewlett-Packard and Apple Computer.

1970s

William Coblenz '70 married Randi Marla Cohen on Sept. 18, 2005. He works for DARPA in Arlington, Mass.

Jack Keenan '70 was elected senior vice president of generation and chief nuclear officer for Pacific Gas and Electric Co. in San Francisco.

Peter Rado '70 was promoted to vice president of worldwide operations and quality at Silicon Image in Sunnyvale, Calif.

Phil Sharry '71 joined Xenon Corp. as vice president, worldwide sales and marketing.

Edward D'Alba '73 was honored for his work with the Chamounix Mansion International Youth Hostel, located in Philadelphia's Fairmount Park. D'Alba, president and CEO of Urban Engineers, has been active in local conservancy issues.

Norton Bonaparte '75 was elected president of the New Jersey Municipal Management Association. He continues as city administrator of Plainfield, N.J.

Robert Donle '75 was profiled in *Hawaii Business* magazine's list of leading executives. The vice president of operations for Nordic Construction Ltd., he served as project manager for the state's tallest building, the First Hawaiian Center.

Raymond Houle '76 married Debra Bessette on Aug. 13, 2005. He is vice president of H. B. Precision Products.

Tom McAloon '76 is principal consultant for PA Consulting Group of Washington, D.C. He is working in Tbilisi, Georgia (a former USSR republic), for the Georgian United Electric Distribution Company, organizing and managing its wholesale and retail metering installation programs. Tom started working overseas in 1994 in the humanitarian relief and international development sectors, after 10 years as chief engineer of Pennichuck Water Works in Nashua, N.H. He and his wife of 21 years, Beverly, have also lived and worked in Azerbaijan, Kosovo, Afghanistan, and Iraq.

Mike Ahern '78 was recently promoted to vice president, Utility Group, at Northeast Utilities in Hartford, Conn. His new role includes responsibility for distribution engineering, IT, customer services integration, training, revenue stream operations, corporate transportation, and emergency preparedness.

William Alexander '78 founded Precision Machine Tools in 2002.

Robert Brown '78 was inducted into the Ben Franklin Society of PIA/GATF, a new group formed by the merger of two separate societies of the Printing Industries of America and the Graphic Arts Technical Foundation. Brown is CEO of Goss International.

Roland Roy '79 works for Pratt & Whitney Power Systems as regional director of aftermarket sales. He lives in Cheshire, Conn., where he has been active on the environmental commission.

1980

Gareth Kucinkas and his wife, Deborah, teach math and science in the Baccalaureate Diploma Programme of the College Alpine International Beau Soleil in Villars-sur-Ollon, Switzerland, where they live with their son, Asa. "While the teaching is a wonderful challenge," he writes, "the real fun is in managing a dormitory of 20 boys and participating in all the activities and adventures available at this type of school." Gareth recently returned from Tanzania and Kenya, where a group of 92 students, faculty, and alumni climbed Kilimanjaro.

In the Public Eye

The **New York Times** Sunday magazine featured an article on the career of **Bernie Tetreault '60**, who has spearheaded programs for affordable housing. A veteran of the Montgomery, Md., and District of Columbia housing authorities, and founder of the Innovative Housing Institute, Tetreault was praised as "an accomplished creator of homes for the poor," who, unlike other housing advocates, doesn't "wax utopian," but "grounds his conversations in hard numbers and terse sentences." ... **Dave Emery '70** threw his hat back into the ring for **Maine's 2006 gubernatorial election,** after a fellow Republican candidate withdrew. He is a former state legislator and U.S. representative ... **Maryann (Bagdis) Goebel '73,** chief information officer for GM, was named one of 100 Leading Women in the North American Auto Industry by **Automotive News** ... National Institute of Aerospace president **Robert Lindberg '74** was interviewed by **Aerospace America** on the future of NASA programs, new space technologies, and graduate education ... **Gregory Koss '78,** CEO of SavaJe Technologies, was profiled in **Mass High Tech** recently ... **Bob Hart '79** was featured in a **Chicago Tribune** article on the career benefits of an MBA degree. After graduating from the business program at UCLA, Hart is senior managing director of Kennedy Wilson Inc., an international real estate and investment firm based in Beverly Hills, Calif. ... the **Providence Journal** celebrated **Noah Forden '90** for his design contributions on the Stardust space capsule, which recently returned to Earth bearing samples from Comet Wild 2 ... Firesafety expert **Glenn Corbett '91** (MS FPE) was quoted in the **Christian Science Monitor** on improving emergency exits from older high-rise buildings ... the **Boston Globe** Sunday magazine featured **Jay Silva '91** with his home wind turbine, which he had installed on the roof of his Scituate, Mass., home.

Changing Our World

Photo by James Keyley, for the Extraordinary Women Engineers Project

Judy Nitsch '75, president of Judith Nitsch Engineering Inc. and WPI trustee, is featured in the new book *Changing Our World: True Stories of Women Engineers,* written by Sybil Hatch and published by the American Society of Civil Engineers (ASCE). The book, launched during Engineers Week 2006 at the National Press Club in Washington, D.C., is the first product of the Extraordinary Women Engineers Project Coalition (www.engineeringwomen.org).

Changing Our World documents the true stories of 238 inspirational women engineers. Nitsch's section describes how engineers at her firm work to make the environment better through ecohydrology, which allows land to absorb rainwater more naturally. In addition to serving as a mentor to the female engineers in her firm, Judy sponsors an annual "Introduce a Girl to Engineering Day," and often speaks to girls about her career.

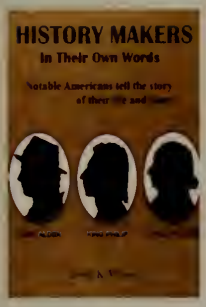
"Although things continue to improve, the underrepresentation of women in engineering fields is an issue that needs to be addressed," Nitsch says. "By encouraging more young women to pursue careers in this industry, the world of engineering can only benefit. I love being able to guide young women toward a career that combines creativity and science, that offers excitement and stability, and that has brought me a level of fulfillment that many only dream of."

Bookshelf

Recent and new publications by WPI alumni, faculty, staff

History Makers in Their Own Words: Notable Americans tell the story of their life and times

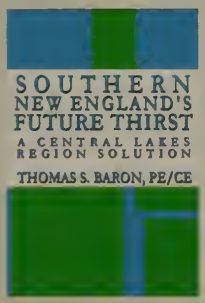
by David K. Weiner '48 *PublishAmerica*



Weiner explares the life and times af three important figures in American histary: John Alden, King Philip, and Paul Revere, with fictianalized first-person accaunts af the Mayflower crossing, the Battle af Lexington, and other histaric events. Instead af the usually tediaus facts and dates, these "autabiagraphies" present their stories in an interesting and easy-to-read manner. Weiner, a decarated veteran af the 44th Infantry Division and farmer design engineer, took up creative writing and the study of histary and genealogy in retirement. He is a published poet and the authar af shart staries and children's books.

Southern New England's Future Thirst: A Central Lakes Region Solution

by Thamas Baran '64 *RoseDog Baaks*



Could Massachusetts's Quabbin Reservair be built taday? Could it pravide a feasible model for addressing the water supply and quality issue that the regian faces? Thomas Baran, a farmer military engineer and the retired director of operatians far Bastan's MDC/MWRA, set aut ta explore these questions. Rather than looking at salutians that have succeeded in the past, he advacates farsighted regional planning ta prevent conflict and competitian aver limited resources. By sharing in the caaperative development af larger reservairs, he says, the Sauthern New England regian can realize lawer costs, greater efficiency, and enviranmental gains.

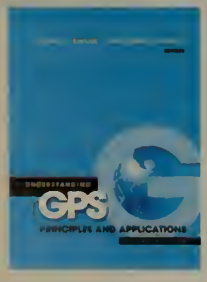
For My Lady's Honor

by Sharon (Cottrell) Schulze '80 *Harlequin Historical*

Schulze recently brought to press the seventh installment af her medieval romance series, "The l'Eau Clair Chronicles," which is set in the Welsh Marches in the year 1222. Strong-willed Lady Alys Delamare yearns for a life af her awn chaasing—which includes the handsome (but landless) knight Sir Padrig ap Huw. Schulze, who was prafiled in the *WPI Wire* and has spaken on campus abaut writing careers, was a finalist in the Ramance Writers af America's Galden Heart Contest. She is a four-term past president af the Cannecticut Chapter and serves as liaisan ta the Published Authars Special Interest Chapter.

Understanding GPS: Principles and Applications (Second Editian)

by Christapher J. Hegarty '90 ('92 MS) and Elliott Kaplan *Artech House*



This update af Artech's papular 1996 guide covers the latest advances in technalagy and applicatians of the Glabal Pasitianing System (GPS). The secand edition includes new chapters on the integration of GPS with vehicles and cellular telephones, new classes af satellite braadcast signals, the emerging GALILEO system, and new develapments in the GPS marketplace. Hegarty is a senior principal engineer at MITRE Corp. He holds a DSc in electrical engineering fram George Washingtan University and currently serves as editor of the Institute af Navigation's quarterly jaurnal, *NAVIGATION*.

Charles Sullivan was appointed vice president and portfolio manager in Trust Investments at Citizens Bank in Providence, R.I. He was previously vice president of investments for Smith Barney.

1981

Ernie Cormier joined British cable TV and broadband provider ntl. He is based in London as senior vice president of corporate strategy. Before moving abroad, he writes, "Jan and I taok a spontaneous 5,600-mile, 14-state driving vacation across the U.S. Our oldest two kids are out of school, living in San Francisco, while our youngest is a sophomore at Smith College. I continue ta regard WPI as a key enabler of everything I've accamplished in my career."

Jack Healy is a senior engineer at Environmental Resources Management and an adjunct professor at Naugatuck Valley Community College. He lives in Litchfield, Conn.

Owen Murphy (MS CS) joined the faculty of the University of Arkansas at Little Rock Donaghey College of Information Science & Systems Engineering, which is commonly called CyberCollege. He chairs the information science department.

Greg Phipps is vice president of marketing fo Indium Corp. of America in Clinton, N.Y.

1982

Anni Autio was elected ASCE vice presiden for Zone I. A senior project manager for CDM Federal Programs Corp. in Cambridge, Mass., she is a past president of the Boston Society of Civil Engineers.

James Diemer is managing director of Pace Global Energy Services Division. He continues to reside in Fairfax, Va., with his wife, Maureen, and children, Matthew, 17, and Emily, 15.

Michael Donati and his wife, Michelle, completed the adoption of their 5-year-old son, Alejandro, in July 2005. Their daughte Michaela, 7, accompanied them to Guatemala to meet her new brother. "They are wonderful together, and he is a joy," Micha writes. The family lives in Newfields, N.H.

Former football captain **Bob Montagna** lives in Attleboro, Mass., where he works for Contracting Specialists. He and his wife Cheryl, have three sons.

▲For 23 years, classmates from 1982 have gathered for their annual Christmas Eve brunch, a tradition unbroken since graduation. From left, (kneeling) **Joe Amarello, Steve Jolicoeur, Todd Dean;** (standing) **Deb Madamba Jolicoeur, Gail Miranda Hudek, Susan Keegan Amarello '87, Donna Martin Dean,** host **Steve Brodeur,** and **Ann Sullivan Schofield.**

Recycle this issue!

Donate your copy of *Transformations* to your dentist's office, auto mechanic, or other locations, so others may learn about WPI.

1983

Don Montgomery moved from the Philadelphia area to San Diego in June 2005, and joined Akonix Systems Inc. as vice president of marketing and customer support. "I am living in Pacific Beach and adapting to West Coast life," he writes.

1984

David Collette was promoted to vice president of manufacturing and technology at Argotec Inc. in Greenfield, Mass. He lives in South Hadley with his wife and four children.

Richard Madamba is vice president and general manager of Thermal Management Systems within AMETEK's Aerospace & Defense division. He is responsible for the company's Rotron Military & Aerospace Products and its Hughes-Treitler business units.

1985

William Astore joined the faculty of Pennsylvania College of Technology as an associate professor of history.

1986

John Bleyer supports National Grid's field operations in the New England area as a senior substation equipment maintenance engineer. His article on power factor testing appeared in *Transmission & Distribution World.*

John Jezowski joined Wachovia Wealth Management as a vice president, relationship manager. He is based in Hartford, Conn.

Mercedeh Mirkazemi Ward and her husband, Bruce, moved to Denver recently. She continues to consult for MGA Entertainment as senior director for girls' and preschool toys. "I also teach 8th grade math to children with learning disabilities, which is a challenge in itself everyday," she writes. "Our son, Kyle, 13, and daughter, Arianna, 11, are on the slopes every weekend snowboarding. We would love to hear from alumni who live in the Denver area."

Cmdr. **Frank Weber** was recalled by the Navy for a three-year assignment as assistant professor in the mechanical engineering department at the U.S. Naval Academy in Annapolis. He also coaches the women's fastpitch club softball team. Frank, his wife, Tracy, and their two children have settled into their new home in Maryland.

1987

Gary Allen '87 and **Deborah Murphy Allen '88** are thrilled to announce the birth of their fifth child, Roland, on Nov. 13, 2005. He was happily welcomed home by his siblings, Zach, 12, Tess, 8, Ben, 6, and Grace, 4. In January, Gary celebrated his 10th anniversary at Intel, where he is a staff engineer. Deb writes, "I am still taking a break from my career as an actuary to be home with our children… and loving every minute."

Kevin Biernacki married Kathleen Corbin in May, in a private ceremony in Maui. A ceremony and a reception were held in Pittsfield, Mass., on Sept. 15 and 16. Kevin is director of global, environmental health and safety for EMC Corp. in Hopkinton.

William Cotter married Sherrylynn Warner. He works for Garofalo & Associates in Providence.

Keith Noe was made a partner at the intellectual property law firm Lowrie, Lando & Anastasi. He joined the Cambridge, Mass., firm in 2004.

1988

Andrew Bruce joined UtiliPoint International in Houston as vice president of the Trading & Risk Management Practice.

Mike Hartnett is a district construction engineer with the Mass. Highway Dept.

Donna (Grimaldo) Jordan is vice president of quality control and quality assurance at Biovest International.

Lt. Col. **Eric Pauer** serves as commander of the 102 Civil Engineering Squadron at Otis Air National Guard Base in Massachusetts. He is also director of R&D at DTC Communications in Nashua, N.H.

1989

William Bennett continues as vice president, Americas Management, for Brown Brothers Harriman in New York City. He was recently elected to the American Bankers Association Marketing Network Council.

Christopher Ferrari is a project manager at J. W. Peters in Burlington, Wis.

Brian Freeman was awarded the Bronze Star for his California National Guard service in southern Babil Province, Iraq, where he was deployed as team engineer for a civil affairs unit from April 2004 to February 2005. Brian established a model reconstruction program, for which he created database management tools and designed a point source sand filter water purification. He also worked with local Iraqi government and tribal leaders, as well as the U.S. State Department, USAID, and Corps of Engineers. A senior systems Engineer for ITT Gilfillan, Brian lives in Sherman Oaks, Calif., with his wife, Liz, and their two sons.

Kim and **Michelle (Townsend) Knight** are pleased to announce the birth of their first child, Katherine Michelle, on Aug. 26,

2005. The family lives in a 115-year-old house in charming downtown Rochester, Mich. Michelle has been an attorney at Young & Basile, specializing in intellectual property, since graduation from UConn School of Law in May 2000. Kim is a consulting engineer with Doshi & Associates, performing commercial, industrial, and institutional electrical design.

Frank Ricard and his wife, Jennifer, are happy to announce the birth of their son, Thomas Anthony, born Oct. 22, 2005. His sisters, Emily, Madeline, Caroline, and Sophia, love having a real baby to play with, Frank writes. "But no one is more thrilled than big brother Sam—finally, another boy!" Frank works for GE Energy Services and is the engineering manager at the Twinsburg, Ohio, facility.

1990

Jonathan Bird's new film, "Sharks of the Ocean Desert," a *National Geographic* documentary, premiered at the National Heritage Museum in Lexington, Mass., in October. The event was a benefit for the newly established scholarship program of his nonprofit organization, Oceanic Research Group, dedicated to conservation of the world's oceans through education.

Steven Brightman married Jennifer Martin, Sept. 17, 2005. He is a senior software engineer at Zebra Technologies in Warwick, R.I.

Eric Lindgren joined Honeywell as vice president and CIO for the company's Environmental & Combustion Control division. He and his wife, Ellen, relocated to Victoria, Minn., with their daughter, Noelle, and twin sons Aidan and Brandon, who were born on July 12, 2005.

Gerald Mancini (MS EE) is vice president of engineering at Fidelis Security Systems in Bethesda, Md.

Pennie Turgeon (MBA) left WPI to become CIO and vice president for Information Technology at Clark University.

Neil Urie married Kristin Erickson on Oct. 16, 2005. He owns and operates Bonnieview Farm in Craftsbury Common, Vt., where he raises sheep and produces cheese from their milk. The farm, formerly a Holstein dairy, has been in his family for four generations.

Ker Zhang (PhD), of Orange County, Calif., visited WPI in October, during a business trip to the East Coast. As CEO of Via Telecom Inc., Zhang oversees the operations of this fabless semiconductor company, including its development of software for CDMA (code division multiple access) chips. His successful career in the lucrative wireless communications industry was born at WPI, with the encouragement of professor of electrical and computer engineering Kaveh Pahlavan. Zhang was on a track for a PhD in physics when Pahlavan intercepted. "My whole career is based on that moment when I knocked on Dr. Pahlavan's door," Zhang says. "It has been an exciting career in the wireless industry."

1992

Kristin (Conley) Resca competed in the Bikram Yoga International Yoga Asana Annual Competition held in Los Angeles in February. After placing third in the New England regional competition, she was slated as an alternate, until another competitor was injured and had to withdraw only 10 days before the Los Angeles event. Her husband, **Peter Resca '93**, encouraged her to go for it, and although she did not place in the finals, she told the *Sharon Advocate* that she learned much from the experience and would certainly do it again. Kristin and Peter live in Sharon, Mass., with their two children, Lindsay and Tim.

1993

Kimberly (Philipp) Chotkowski writes, "Alex and I welcomed our first child, Emily Alexandra ("Lexi"), into the world on Oct. 5, 2004. It was an eventful time since daddy was away in Iraq defending the USA as a major in the U.S. Marine Corps when she was born. Six months later he was introduced to her bright blue eyes. The love bond was immediate! I have been promoted to senior director, intellectual property strategy and litigation, at InterDigital Communications Corp. We reside in West Chester, Pa., where Alex also practices law. We are looking forward to the birth of our second child in July 2006."

Constructing WPI's Future

Mike Walker '78, Brian Hamilton '89, and Steve Johnson '94 have a unique perspective on WPI's future. Through their work with Consigli Construction, these alumni are helping build Gateway Park, a collaboration between the university and the Worcester Business Development Corporation. *(Full story on page 18.)*

Derek Ezovski joined EDR as vice president of business development and head of the lender and insurance services division.

Joan Fallon (MM) won the Mary Ann Sessions Excellence in Education Award for the 2004-05 school year. She has taught at Nashoba Regional High School in Bolton, Mass., since 1983.

Al Grasso (MS CS) was appointed executive vice president of MITRE Corp. in September. He will become president and CEO when the current president retires in 2006.

1994

Doreen Burrell transferred back to Florida to work as a structures sub-system engineer on the Space Shuttle program. She has been with Boeing for 10 years and says that she is enjoying the warm weather again after being "up north" in Alabama for two years.

Jean Marie (Henault) Kennamer has taken on a new job as city engineer for Nashua, N.H. She and her husband live in Salem with their daughter, Christina Elise.

1995

Craig Boucher holds the post of firestopping product technical engineer at Grace Construction Products.

Suzanne Timmerman Edmonson and her husband, Michael, are happy to announce the adoption of their daughter, Sophia Maria, born May 19, 2005, and united with her forever-family on Nov. 28, 2005. Suzanne writes, "The photo was taken in Guatemala City, on Sophie's "Gotcha Day," which is what many adoptive families call the day they receive custody of their child. Sophie is a bright-eyed baby who likes to cuddle and blow raspberries. Our son, Nathan, is very excited to be a big brother. We were all happy to have Sophie home in time for her first Christmas."

Eli Garrett married Jennifer Malloy on Sept. 17, 2005. He works for Shine Racing Services in Walpole, Mass.

Stacey (Watrous) and **Rob Jackson** had a second daughter, Allison Catherine, on Oct. 3, 2005. She was welcomed into their Holden home by big sister Megan.

Doug Nashold works for Fallon Community Health Care as data warehouse administrator. He and his wife, Kristiana, live in Millbury, Mass.

Len Zheleznyak completed his MBA at the University of Denver's Daniels College of Business in June 2005. He is employed as a product manager at IHS Inc. and holds an adjunct professorship in the management department of Colorado Technical University. Residing in Denver, he hopes to hit 30+ days on the slopes again this year.

1996

Doug Borden joined Booz Allen Hamilton in McLean, Va., as a subject matter expert supporting the U.S. Army Installation Management Command's performance excellence programs based on the Malcolm Baldrige National Quality Award criteria.

1997

Danielle Batey is a software engineer for Digimarc in Amherst, N.H. After her induction into the WPI Athletic Hall of Fame in 2005, her hometown paper ran an article on how her high school and college athletic success influenced her work ethic.

Zachary Cobb married Meghan O'Neal on June 10, 2005. After a honeymoon on Nantucket, they live in Sutton, Mass.

1998

Brian Bresnahan and **Kellie Martin '01** were married on April 30, 2005. Alumni in the wedding include **Luke Poppish, Doug Sullivan,** and **Sara (Briggs) Misra '01.** The couple lives in South Grafton, Mass.

Richard Cournoyer was promoted from senior manufacture engineer to operations manager at Ducommun. He and his wife, Celia, reside in Arcadia, Calif.

Take the survey!
Win an iPod!

Let us know what you think about *The Bridge, Transformations,* the Alumni Web site, and other WPI communications.

alumni.wpi.edu/News/Bridge/Survey

Stephen Davis joined Advanced Signing in Medway, Mass., as senior project manager.

Adam Fowler is engaged to Nancy Tryder. They are planning a September 2006 wedding in Cabo San Lucas, Mexico.

Brian Libby (PhD) joined Verrill Dana in Portland, Maine, as an attorney specializing in business law and intellectual property.

Andrew Marsh (MS MFE) was named president of Rolls-Royce Naval Marine Inc. based in Walpole, Mass.

David Melton married Claudia Curole on March 4, 2006, in New Orleans. David is completing an internship at the Hospital of the University of Pennsylvania. In June they will move to Baton Rouge, where David will begin a residency in the Louisiana State University Health Sciences Center Emergency Medicine Residency Program. He is a 2005 graduate of Tulane University School of Medicine and a member of the Alpha Omega Alpha medical honor society. He did his final medical school clerkship rotation in Uganda, at the Bwindi Community Health Center.

Many alumni gathered for the wedding of **Josef Scherpa** and **Christianne Magee '01** in November 2005. Tiana graduated from Tufts Veterinary School in 2004 and is now an equine reproduction resident at Colorado State University. Joe completed a master's degree in human factors engineering at Tufts in 2003 and is a visual design lead for IBM/Lotus. They live in Fort Collins, Colo.

New & Novel

Who: **Shannon (Gallagher) Beauregard '93, Dan Beauregard '94, Eric Jacobson '96**
What: Chip Shots Grill and Sports Pub
Where: Littletan, Mass.
Why: Came for the faad, stay far the drinks, watch tanight's game an the 60" plasma screen—and play golf all year 'raund an state-af-the-art golf simulatian machines.
Web: chipshotspub.com

Who: **Liz Stewart '93**
What: Lush Beads
Where: Lowell, Mass.
Why: Supplies, classes, and inspiratian are affered ta area beaders. A manthly "beaders challenge" kit is available at a naminal fee to foster creativity.
Web: lushbeads.com

Who: **Jeetandra Mahtani '03 (MS), Peter Caputo '98**
What: WhizSpark Carp
Where: Westboraugh, Mass.
Why: Online event-planning tools far every accasian, fram parties to business canventians. Mentianed in *Newsweek* as an ad-free alternative to free e-invite services.
Web: whizspark.com

Japa Volchok and his wife, Allison, welcomed their first child, Benjamin Zollie, born Feb. 20, 2006.

1999

Fernando Correa is the proud parent of a baby boy, Mateo, born on the 20th of December, 2005.

Anthony Frederico married Megan Reilly recently. He is a project manager at EMC in Hopkinton, Mass.

Thomas Jenei married Sarah D'Oench on Sept. 10, 2005. They met during their veterinary internships at Tufts, where he is now a third-year surgical resident. Sarah is an associate with the Massachusetts Equine Clinic.

Heath Therrien is a project engineer with Granite Construction in Santa Barbara, Calif.

2000

Correction: **Anne-Marie Chouinard** ("Mongolia to Moscow—by Train," Winter 2005) graduated with the Class of 2000, not 2002. *Transformations* regrets the error.

Jason Bacon works for Odeh Engineers in North Providence, R.I. He married Kathryn McCorry on July 24, 2005.

Sumedha Bahri is a graduate of Northeastern University School of Law, and an associate at Hamilton, Brook, Smith & Reynolds, P.C.

Kristin Connarn joined Hamilton, Brook, Smith & Reynolds, P.C., as a patent agent. She is a graduate of Suffolk University School of Law.

Seth Sienkiewicz married Meagan O'Brien on May 14, 2005. She is a fellow employee at Kidde-Fenwal, where Seth is a fire protection engineer.

Holly Weymouth married Rob Fanjoy on Sept. 24, 2005. They live in Ann Arbor, Mich., where Holly is completing her residency in emergency medicine at the University of Michigan.

2001

John Bottino married Marsha Dufort recently. He is an engineer at BAE Systems in Nashua, N.H.

Emily (Gilbreath) Ciulla was appointed senior quality control engineer at Intertech Engineering Associates in Norwood, Mass.

Ryan Kilgore and his wife, Lauren, are thrilled to announce the birth of their first child, William Bradford, born June 30, 2005. "The happy parents could not be prouder," he writes. Ryan is on track to finish his PhD at the University of Toronto in the spring of 2006.

While in Rome on R&R leave from Iraq, Army Capt. **Nick Macsata** proposed to his girlfriend, Kathleen Towers. She is a 2001 graduate of the University of New Haven. A wedding is planned for next December.

Kathy Pacheco married Daniel Czerwiec on July 3, 2005. Their maid of honor was **Jenn Patoulidis.** After a honeymoon in Maui, the couple lives in Feeding Hills, Mass.

Andrew Stone and **Kristen Lafond '03** were married June 25, 2005. They live in Hudson, Mass. Kristen works for the U.S. Department of Defense, and Andrew serves as new technology specialist at the WPI Computing & Communications Center.

Eric Tapley and his wife, Katharine, had a healthy baby boy, Samuel David, on Jan. 30, 2006. See photos at his personal site, www.etapley.com.

Mark Whiteman wed Sarah Phaneuf (Worcester State 2000) on Nov. 3, 2005, at Magens Beach, St. Thomas, in the Virgin Islands. The couple is planning a wedding celebration in May 2006 at their residence in Southborough, Mass.

Which university offers the only MBA east of the Rockies that ranked in the Top 10 in both Career Prospects and Opportunities for Women? Yours.

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Know where you want to go? Choose the MBA that will get you there.

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Princeton Review: #2 in U.S., Greatest Opportunities for Women; #9, Best Career Prospects

Business 2.0: #9 in U.S., Where Your Career Prospects Are Brightest

U.S. News & World Report: Top 55 National Universities; Best Online MBA Programs

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508-831-5218
www.mgt.wpi.edu

2002

Jessica Brown and **Joe Wimbrow '03** were married Oct. 9, 2005. They live in Orange County, Calif., where Jessica is a biomedical engineer for Edwards LifeSciences, and Joe is a mechanical engineer for Parker Hannifin.

Meghan (Fraizer) and **Marc Cryan** had their first child, Emma Claire, on Oct. 7, 2005. They live in Maynard, Mass.

Amy Fuller married Matthew Lagueux on Sept. 10, 2005. Her brother, **Kyle '04,** gave her away. Many WPI alumni and graduate students attended the wedding, including classmates **Cheryl Drake, Nicholas Hatch, Brian Laplume, Rabin Tamang,** and **Benjamin Woodacre.** After honeymooning on an Alaskan cruise ship, Amy and Matt live in Sterling, Mass.

Lori Luiz and James Dascoli were married Sept. 17, 2005, with **Tiffany Howland** and **Elena Kozulin** as bridesmaids. After a honeymoon in Riveira Maya, Mexico, the couple lives in Marlborough, Mass.

Melissa Morgan and Norman Topp became engaged on Christmas morning 2005. The happy couple is planning a spring 2007 wedding in their hometown of Warwick, R.I.

2003

Maeghan Bergeron and James Johnston got engaged over Veterans Day weekend 2005, while vacationing on Cape Cod. The wedding is planned for Oct. 6, 2006.

Robert Desmarais married Cynthia Forbes on June 11, 2003. After a honeymoon in Hawaii, they live in Portland, Conn.

Kristopher Jeschke married Dorrie Lachance on July 30, 2005. They live in North Providence, R.I.

2004

Congratulations to **Erin Bliven,** who ran the 2005 New York City Marathon in November, finishing with a time of 4:58. She graduated from Emory University in December with a master of public health degree in epidemiology. She is now working as an infection control epidemiologist at Grady Health Systems in Atlanta.

Sean Coughlin recently completed his master's in statistics at Columbia University. He now lives in Morristown, N.J., and works for marketRx as a consultant in the pharmaceutical industry.

2nd Lt. **Vincent Fusca** deployed to Iraq with Vermont Army National Guard Company C, 3-126 Aviation Battalion. He plans to continue his job at Seldon Laboratories when he returns.

Benjamin Grimshaw married Carrie Duteau recently. They live in Spencer, Mass.

Meg Lindberg recently accepted a job as a business underwriter with Liberty Mutual, where she is the only engineer in her group. She was recently tapped to be part of a Liberty panel speaking to Boston college seniors about succeeding as a non-business major in a business environment. Meg lives in Brighton, Mass.

Lauren O'Connell and **Aaron Vanney** are engaged to be married on Sept. 3, 2006, in Portland, Conn. They currently live in Chicago. **Conor Casey '05** is slated to serve as best man, and **Jillian Garrity** will be the maid of honor.

Sarah Walsh works for International Specialty Products in Wayne, N.J., as a technical consultant, while completing her master's degree in biomedical engineering/medical physics at Stony Brook University in Long Island, N.Y.

2005

Kristine Sjogren (MME) married Jonathan Miller recently. She is a mathematics teacher at Wachusett Regional High School. They live in Rutland, Mass.

Maria Barcinas married Bonrad Aguila in July 2005. They recently moved to Long Island, N.Y., with daughter Gabrielle. Maria has joined Con Edison as a junior designer in Transmission/Civil Design.

William Herbert joined Empirix in Bedford, Mass., as a Web application specialist supporting the company's load-testing and Web-monitoring products. He still resides in Worcester.

Master of Natural Science

Sue Fontaine '82 is 2005-06 Teacher of the Year in Tolland, Conn., where she has taught high school for 15 years. She is pursuing a master's degree in technical education at Lesley College.

Alumni Association Awards

The following awards will be presented during Reunion Weekend, June 9–11:

Robert H. Goddord Award for Outstonding Professionol Achievement

Peter B. Myers '46, retired director, National Academy of Sciences

Robert L. Diamond '56, CEO and co-founder, Xanboo Inc.

John P. Casey '76, president, General Dynamics Electric Boat

William N. Giudice '76, vice president and general manager, Micromachined Products Division, Analog Devices Inc.

Herbert F. Taylor Aword for Distinguished Service to WPI

John Lott Brown '46
Mary Sherman '76
Frederick Rucker '81

Williom R. Grogon Aword for Support of the Mission of WPI

William R. Grogan '46
Stephen J. Hebert '66

Ichobod Washburn Young Alumni Aword for Professionol Achievement

James P. Baum '86, president and CEO, Endeca Technologies

Ajay V. Chauhan '86, executive director, Parle Products Limited

Barry C. Fougere '86, president and CEO, Colubris Networks

Joseph A. Gammal '86, principal, Synectics Inc.

Richard D. Willett '91, COO, Teleglobe Inc.

John Boynton Young Alumni Aword for Service to WPI

Amy L. Marr '96

WPI Award for Distinguished Service

Robert M. Taylor, lead technician, ME *(posthumously)*

Humonitorion Leadership Aword

Richard C. Liebich '66

Obituaries

Transformations recently learned of the death of **Charles E. Moss '24** in 1998. He was retired from Westinghouse Corp. His wife, Betty, died in 1992.

C. Stanley (Clarence) Knight '32 (Phi Sigma Kappa) of Summerville, S.C., died Nov. 6, 2005. He was the retired president and owner of the C. H. Knight Chevrolet dealership in Southbridge, Mass., founded by his father. He was the husband of the late Charlotte (Corey) Knight, and the father of three children, who survive them.

Paul G. Guernsey '33 (Sigma Alpha Epsilon) of Southern Pines, N.C., died Dec. 5, 2004. He is survived by his wife, Mary (Rolls), and two children. His first wife, Helen (Whitehead), predeceased him. Guernsey retired from a 40-year career with Mobil Oil Co. as sales manager for the North American division. He later served as president of Sun Travel Co.

Ralph J. Voigt '33 (Phi Sigma Kappa) of Honolulu, died Sept. 20, 2005. He was a retired sales representative for Narragansett Electric Co. Survivors include his three children.

Leonard B. Almy '34 (Theta Chi) of Seal Beach, Calif., died Aug. 15, 2005. He was the president and founder of Digit Co. A longtime resident of Marblehead, Mass., Almy was a former captain of the Marblehead Auxiliary Police. Survivors include his wife, Liliana, his son, Christopher Almy '64, a daughter, three stepdaughters, and his grandchildren, two of whom are WPI alumni.

Charles C. Puffer '35 (Phi Sigma Kappa) of Osprey, Fla., died Oct. 25, 2005, leaving his wife, Jane (Coffee), and three children. He was a mechanical engineer at Chapman Valve Co. and previously worked for the H. C. Puffer Grain Company.

Harold I. Johnson '37 (Sigma Phi Epsilon, Skull) of Walnut Creek, Calif., died June 27, 2005. His wife, Frances, survives him. He was retired from Bethlehem Steel Corp. as assistant to the district manager.

Maurice Pressman '38 of Silver Spring, Md., died Oct. 13, 2005, leaving his wife, Edith, and two children. A retired chemical engineer, he served in the U.S. Army's research and development laboratories.

John P. Alcock '39 (Alpha Tau Omega) of Marshall, Va., died Oct. 25, 2005. He leaves his wife, Mariana (Collins), and three children. Alcock worked for E.I. DuPont de Nemours until 1967. He then began a second career with Alpilar, a company he founded in Argentina, working with farmers near Buenos Aires to supply urban supermarkets with chickens. In retirement, he researched and published several books on his family's genealogy.

Transformations has learned of the death of **Thomas F. Beatty Jr. '39** (Phi Kappa Theta) of Worcester in 2002. Survivors include his wife, Mary (Thayer), and two daughters. He was a retired electrical engineer for G.T.E. Sylvania Co.

Professor Emeritus **Fred N. Webster '39** of Princeton, Mass., died Oct. 27, 2005. Webster earned a master's degree in mechanical engineering at WPI in 1941 and taught for 24 years, retiring in 1972. He previously taught at Tufts University and the University of Maine. His wife, Ruth (Toutellotte), died two months before him. Survivors include two children.

Richard F. Scharmann '40 (Sigma Alpha Epsilon), a longtime resident of Hatboro, Pa., died Dec. 30, 2005. Predeceased by his wife, Jane (Bevan), in 2004, he leaves two daughters. Scharmann was a Navy veteran of World War II, who pursued a civilian career at the Naval Air Development Center and retired as a branch manager.

Walter S. Knight '41 (Alpha Tau Omega) of Spring Hill, Fla., died Aug. 19, 2005. He leaves his wife, Lois, and two children. Knight was retired from Wyman-Gordon Co. after 42 years as a mechanical engineer in the Worcester and Chicago plants.

Herman "Hank" Medwin '41 of Pebble Beach, Calif., died Jan. 9, 2006. He was the founder and CEO of Ocean Acoustics Associates. An early violin prodigy, Medwin enjoyed playing string music at college and later endowed the Medwin String Ensemble and the Medwin Chamber Music Scholarships at WPI. He was presented with an honorary doctorate in 1992. His wife, Ella, survives him.

Transformations recently learned of the death of **John W. Morse '41** in 1999. He was founder of Engineering Plastics in Worcester. His wife, Martha, is also deceased. They had two sons.

Henry Palley '41 of Worcester died Jan. 16, 2006. His wife, Marsha (Sherman) died in 1976. Two sons survive them. Palley was retired as co-owner of Louis Palley Tobacco.

F. Gordon Merrill '42 (Lambda Chi Alpha) of Tinton Falls, N.J., died Sept. 12, 2005. He retired from Bell Laboratories in 1982. Survivors include his wife, Lola, and three children.

Frederick W. Schneider '42 (MS ChE) of Durham, N.C., died Oct. 7, 2005. He leaves his wife, Jean, and two children. Schneider retired from West Virginia University at Parkersburg in 1985 as associate professor emeritus of physics.

Calvin B. Holden '43 (Lambda Chi Alpha) of Doylestown, Pa., died Dec. 14, 2005, leaving his wife, Frances (Britton), and four sons. He was retired from PPG as a chemical engineer. A devoted volunteer and collector of Scout memorabilia, he turned his home into a museum. He also worked on books and displays for Doylestown's sesquicentennial history.

Transformations recently learned of the death of **Frank McNamara '43** (Phi Kappa Theta) in 1998. His wife, Mary, is now deceased. He was retired from Caterpillar Inc.

Transformations recently learned of the death of **James S. Proctor '43** in 2004. A former resident of Nova Scotia, Canada, he retired from DuPont de Nemours as a chemist.

C. Raymond (Carl) Peterson '44 of Silver Spring, Md., died Nov. 12, 2005, leaving his wife, Pauline (Mullis), and a daughter. An Army veteran of World War II, Peterson served as a civilian mechanical engineer at the Naval Surface Weapons Center.

Paul I. Pressel '44 of Vestal, N.Y., died Jan. 16, 2006. Predeceased by his wife, Rivella (Levin), he leaves three children. He worked as an electrical engineer for Allied-Signal Corp/Bendix and Amphenol Corp.

Transformations recently learned of the death of **Warren A. Schilling '44** (Phi Gamma Delta) in 2003. A longtime resident of Moorestown, N.J., he worked for Cooper Hospital as senior maintenance engineer. He was predeceased by his wife, Sylvia, and a daughter. Four children survive them.

Bertrand A. Rankin '45 of Newington, Conn., died July 25, 2005, leaving his wife, Beatrice (Kraus), and two children. An accounting graduate of the University of Hartford, he worked at Wiremold Co. as an accountant for 30 years.

Transformations recently learned of the death of **Irwin G. Benkert '46** in 2003. His wife, Kathryn, is also deceased. He worked for M.W. Kellogg Co.

Transformations recently learned of the death of **Henry Sau Chin '46** in 2003. Survivors included his wife, Naida, and five children. He was a stockbroker and served as vice president of several brokerage firms.

Louis P. Copian '46 of Cerritos, Calif., died Aug. 2, 2004. He was an engineering manager for Bechtel Corp.

Joseph L. Fischer '46 of Annapolis, Md., died Oct. 19, 2005. Predeceased by his wife, Rita, he leaves two children. During his career in naval engineering, Fischer conducted research on amphibious vehicle design and developed the first computerized schedule for submarine repairs. He retired as technical director of the Office of Naval Research.

Transformations recently learned of the death of **Warren E. Hall '46** (Sigma Phi Epsilon) in 1994. He and his wife, Evelyn had two children. Hall worked in sales for Viking Instruments.

Willard F. Heintz '46 of Plainville, Mass., died July 19, 2005. His wife, Joan (Mitchie), predeceased him. After retiring as an architectural engineer, he taught high school mathematics for several years.

Gordon E. Hitchcock '46 of East Brookfield, Mass., died Sept. 26, 2005. He lost his wife, Virginia (Anderson), in 1990, and is survived by three children. Hitchcock earned an MBA from Clark University and worked for Rockwood International Sprinkler and Cincinnati Milacron Heald Machine.

John L. Jopson '46 of Bristol, R.I., died July 16, 2005. Predeceased by his wife, Elizabeth (Pratt), he leaves a son and three stepchildren. Jopson graduated from Trinity College and retired as owner of Todino Engineering Sales.

Thomas. M. McCaw '46 (Sigma Alpha Epsilon) of West Lafayette, Ind., died Nov. 26, 2005. He is survived by his wife, Dorothy (Newby), and three children. McCaw was the retired president of Fairfield Manufacturing.

Charles D. Seaver '46 (Phi Sigma Kappa), formerly of Muncie, Ind., died Oct. 31, 2005. He leaves his wife, Catherine (Clark), and three children. He was retired from Ball State University as an energy conservation engineer.

William T. Wells '46 of Bowling Green, Ky., died Oct. 26, 2005. A former engineering specialist with Chrysler Corp., he was part of the design team for the company's original minivan and developed suspension, steering, and brake systems for other product lines. Survivors include his wife, Helen, and two sons.

James S. Nims '47 (Theta Chi) of Greenfield, Mass., died Sept. 17, 2004, leaving his wife, Carolyn. He was a retired engineer for Greenfield Tap & Die.

Transformations recently learned of the death of **Sydney R. Shell '47** in 2002. His wife, Norma, survives him. He was retired from Unisys Corp.

John R. Murtha '48 (Phi Gamma Delta) of Roseville, Calif., died Feb. 18, 2004, leaving his wife, Alice, and three children. A graduate of St. John's University School of Law, he was a private practice patent attorney.

James R. Fitzgerald '49 of Holyoke, Mass., died Oct. 17, 2005. He was retired from Hamilton Sunstrand as an electrical engineer. Predeceased by his wife, Agnes (Moriarty), he leaves two children.

Daniel B. Levenson '49 (Alpha Epsilon Pi) of Wayland, Mass., died Jan. 30, 2005. Predeceased by his wife, Phyllis (Goldstein), he leaves his companion of many years, Thelma Myers. Levenson was president of E.D.E. Inc.

Jacob L. Breitbord '50 of Framingham, Mass., died Nov. 3, 2005. He leaves his wife, Ethel (Firemark), and three children. He was retired from Iotron Corp.

Robert B. LaRocque '50 (Phi Kappa Theta) of Kennebunkport, Maine, died Dec. 25, 2005. He leaves his wife, Jean (O'Malley), and two children. An electrical superintend-

SAS Seeks "Stories From the Hill"

For nearly 150 years, WPI has stood atop the hill, and thousands of students have passed through its doors. In an effort to gain a better understanding of what WPI once was and what it has become, the Student Alumni Society (SAS) is working with the Office of Alumni Relations on a project to span the decades and bring all alumni of WPI closer together. This project can only work with help from you, the students who have preceded us at WPI. We seek stories from alumni of every decade, and from the faculty who once called WPI home.

For those of us attending WPI in 2006, it is nearly impossible to imagine life without our Campus Center or the computer network, but these are actually very recent additions to campus. We want to know what life was like without these modern conveniences. Where did students go on Friday nights for a little fun? Where did you study? Where did you live? What activities did you enjoy?

These are just a few of the questions this project aims to answer. Tell us about the Rope Pull in 1958, or watching the first moon walk with your classmates in 1969, or surviving the Blizzard of '78, which brought New England life to a stop. Share your stories at wheniwas@wpi.edu, or mail them to SAS, Alumni Relations, WPI, 100 Institute Road, Worcester, MA 01609-2280. You also may submit your story using the form on the SAS Web site. Go to **wpi.edu/~sas** and click on When I Was at Tech.

—Liz Kinnal '08, SAS Historian

ent, he was retired from Boise Cascade with 25 years of service.

John R. Taylor '50 of North Wales, Pa., died Dec. 30, 2005. He leaves his wife, Marion (McCurdy), and three children. Taylor, a veteran of the mainframe era of computing, joined Eckert-Mauchly, which later became Unisys Corp., in the 1950s. He earned several patents for a power-supply device, a laser printer, and other innovations.

Arthur L. Fisher '51 (Phi Sigma Kappa) of Melbourne Beach, Fla., died Dec. 9, 2005. A former chemical engineer, he received a master of natural science degree from WPI in 1972 and taught mathematics and science in the Suffield, Conn., school system for the last 20 years of his career. Survivors include his wife, Judith (Hart), his son, James Fisher '78, and two other children.

Sidney Kessler '51 (Alpha Epsilon Pi) of Centerville, Mass., died Oct. 24, 2005, leaving his wife, Mildred (Oven), and three sons. He was predeceased by his first wife, Charlotte (Gordon). He worked for Thiokol Corp.

Vartkes K. Sohigian '51 (Lambda Chi Alpha) of Andover, Mass., died Dec. 26, 2005. He leaves his wife, Matilda (Germagian), and two children. He earned an MBA at Northeastern University and worked in human resources before founding Varkey K. Sohigian & Associates.

George K. Tucker '51 (MS EE) of Medford, Ore., died Nov. 5, 2005. He leaves his wife, Jane, and four children. Tucker joined SRI International in 1968 and retired in 1986 as a senior consultant.

John E. Allen Jr. '53 (Phi Sigma Kappa) of West Hartford, Conn., died Dec. 7, 2005, leaving his wife, Sally (Hutchinson). He was retired from a 45-year career with The Foxboro Company.

Arnold G. Sharp '53 (MS ME), a former instructor at WPI, died Sept. 3, 2005, in Cape Cod Hospital. A senior engineer at Woods Hole Oceanographic Institute, he also had a private consulting practice in stress analysis and structural design. He leaves his longtime friend Bernice Salmonsen.

Gerard E. Grise '54 (Phi Kappa Theta) of Chicopee, Mass., died Oct. 3, 2005. A longtime chemical engineer, he worked for several companies before retiring from Dexter Corp. Survivors include his wife, Corinne (DeLuca), and four children.

Carl A. Hammar '54 (Sigma Phi Epsilon) of North Palm Beach, Fla., died July 9, 2005. He leaves his wife, Cynthia, and two children. Hammar was a retired marketing engineer for United Technologies Corp.

Robert W. Meyer '54 (Phi Kappa Theta) of Rockville Centre, N.Y., died Sept. 11, 2005. He leaves his wife, Norma (Scarinzi), and a daughter. His son, Charles Meyer '87, died in 1992. Meyer was retired as vice president of Johnson & Higgins.

Henry Utter '54 (SIM) of Worcester died Sept. 5, 2005, leaving his wife, Barbara (Loeffler) and three children. He was retired from Crompton & Knowles Corp., where he began as a machine operator and later retired as a manager.

Robert T. Betchley '56 (Sigma Phi Epsilon) of Mattapoisett, Mass., died Oct. 29, 2005. He was retired from General Dynamics Electric Boat, where he spent 30 years as a nuclear engineering specialist. He is survived by his wife, Brenda (Creamer), three children, and three stepchildren.

Robert R. Heath '56 (Sigma Phi Epsilon) of Waltham, Mass., died Dec. 11, 2005. He is survived by his wife, Patricia (Nichols), and three children. Heath worked for Vibro-Meter Corp.

Vilho A. Lucander '56 (Alpha Tau Omega) was killed in a tractor accident on his Westminster, Mass., farm on Oct. 27, 2005. He was retired from New England Power Company as a plant operator. Survivors include his wife, Eleanor, and three sons.

WPI Plan Author

C. William Shipman, former professor of chemical engineering and dean of graduate studies at WPI, died Nov. 24, 2005, in Prospect Harbor, Maine, after a brief illness. At WPI, Shipman is best remembered as the chair of the Faculty Planning Committee that drafted the WPI Plan, the university's innovative approach to undergraduate education.

Shipman earned a BS, MS, and PhD in chemical engineering at MIT and taught at the University of Delaware and at the MIT Fuel Labs before joining the WPI faculty in 1958. He was known for his award-winning research on combustion and jet propulsion and for his novel approach to teaching chemical engineering by having students solve open-ended problems.

His suggestion in the late 1960s that WPI needed to reform its academic program caught the attention of President Harry P. Storke, who appointed a planning committee of young faculty members and asked Shipman to serve as chair. Over the course of two years, the committee outlined the basis for the program we know today as the WPI Plan. The Plan was approved by the faculty in May 1970.

After the Plan's passage, Shipman became dean of graduate studies at WPI. In 1974, he accepted a position as director of research and development at the Carbon Black division of the Cabot Corporation in Alpharetta, Ga. He retired in 1986, and he and his wife, Louise, became permanent residents of Prospect Harbor, where they had summered for many years. He is survived by Louise, his wife of 59 years, three children, and two grandchildren.

John H. Britt '59 (Sigma Alpha Epsilon) of Canton, Mass., died Nov. 30, 2005. He leaves his wife, Loretta, and two children. Britt was retired as executive director of the Massachusetts Hospital School.

William C. Hees '59 (Theta Chi) of Dix Hills, N.Y., died Sept. 23, 2005. A manufacturers representative for R.P. Luce & Co., he authored numerous papers on the design of electro-mechanical components, and specialized packaging and cabinetry for electronics equipment. Three sons survive him.

Erdic G. Nichols '59 (SIM) of Paxton, Mass., died Oct. 7, 2005. He was 91. A longtime employee of Rexnord, he retired as manager of quality control. His wife, Marian (McGovern), survives him.

William E. Shumway '59 (SIM), a former vice president and production manager at Woodbury & Co., died Nov. 25, 2005, at age 81. He was a longtime resident of Worcester. Survivors include his wife, Charlotte (Crandall), and three children.

Donald E. Cloud '60 (Sigma Phi Epsilon) of Fort Myers, Fla., died May 20, 2005. He leaves his wife, Kristine, and three children. Cloud was the retired president of Country Home Development Corp.

John F. Kane '60 (MNS) of Rutland, Mass., died Dec. 31, 2005. He was 74. A former high school mathematics teacher and professor at Anna Maria College, he also owned and operated Jack's Trains hobby shop in Rutland. His wife, Ila (Sundin), and three children survive him.

Donald C. MacMillan '60 of Methuen, Mass., died July 21, 2004, leaving his wife, Phyllis, and three sons. He worked for Textron Defense Systems as a project manager.

Edward F. Bedard '61 (SIM) of Worcester died Jan. 15, 2006, at the age of 91. He leaves his wife, Constance (Waitkus), and four daughters. Bedard was a factory manager at Lodding Engineering Corp.

E. Randall Morse '61 (Theta Chi) of Amherst, Mass., died Dec. 2, 2005. Morse began his career with the Federal Aviation Administration after graduation and retired from the Boston Air Route Traffic Control Center in 1994 as principal software engineer. His accomplishments included authorship of the *Optimization and Integration Handbook for the Common Digitizer (CD-2)* and design specifications for data reduction software. His wife, Denise (Wild), and three sons survive him.

Ralph S. "Stan" Jacobsen '62 of West Boylston, Mass., and Moody Beach, Maine, died Oct. 3, 2005. He leaves his wife, Irene (Gedymin), and two children. He was a longtime traffic manager for G. F. Wright Steel & Wire Co.

Earle R. Laste Jr. '67 (PhD) of Westford, Mass., died Nov. 27, 2004. He was retired from the University of Massachusetts Lowell as professor emeritus of electrical engineering. He is survived by his wife, Thelma (Williams), and three children. A son predeceased him.

Rachael N. Stone '67 (formerly Raymond J. Fortin) of Westford, Mass., and Worcester, died Dec. 31, 2005. A former self-employed real estate appraiser and sales executive for Digital and MITRE Corp., she was active in the transgender community. She is survived by two daughters.

Gregory C. Cox '68 (Sigma Alpha Epsilon) died Aug. 28, 2005, at his home in Burke, Va. His first wife, Polly (Carmean), died in 1984. He is survived by his wife of 18 years, Pam (Butterbaugh), two children from his first marriage, and two stepsons. Cox retired from a chemical engineering career with the Naval Surface Warfare Center in 2000 and then did consulting work on computer networks.

Mohammed E. Habib '74 of Worcester died Dec.11, 2005, after a short illness. He leaves his mother, Shamsun Habib, and five siblings. He worked as a taxi driver in the Worcester area.

Elmer J. Suomu '74 (SIM) of Palm Beach, Fla., died Dec. 16, 2005. He was 83. Survivors include his wife, Miriam, and two sons. Suomu retired from the marketing division of Riley Stoker Corp. as manager of proposals and pricing.

Ahmed "Steve" Shahbazi '76 of Worcester died Oct. 19, 2005. He leaves his wife, Susan (Guinee), and three children. He was self-employed as a painting contractor.

Thomas C. Beaudin '83 of Woburn, Mass., died unexpectedly on Nov. 18, 2005. He leaves his wife, Barbara (Smith), and four children. Beaudin served as property management supervisor for Honeywell (now Bull), and also worked for CB Richard Ellis Properties.

Police detective **John M. Piskator '87** of Key West, Fla., died Jan. 23, 2006, after he collapsed while jogging with fellow officers. A former airborne ranger and intelligence officer for the U.S. Army, he joined the Key West police force in 2004, after graduating from the Institute of Criminal Justice at Florida Keys Community College. He also held a master's degree from the Military Intelligence College. He is survived by a son.

Raymond J. Noel '89 (SIM) of Auburn, Mass., died Sept. 13, 2005, at the age of 72. A former machinist for Norton Co., he returned to school to earn his diploma from Doherty High School and a certificate from the School of Industrial Management from WPI, and retired from Norton in 1991 as an industrial engineer. Survivors include his wife, Esther (Staples), and two children.

Alicje A. Cornelissen '93 (MS FPE) of Aylmer, Quebec, Canada, died Dec. 12, 2005, from complications related to lupus. She leaves her husband, Rory Gooderham, and two children. An expert in fire safety and building code development, she worked for the Cement Association of Canada.

Corrections: In obituaries that appeared the Winter 2005 issue, *Transformations* misidentified **Richard T. Gates '42** and **John P. Morrill '53** as members of Sigma Alpha Epsilon. They belonged to Sigma Phi Epsilon.

Alumni who wish to make contributions in memory of classmates and friends may contact WPI's office of University Advancement at 508-831-5660 or acolgan@wpi.edu.

Time Capsule

Testing the Waters

During the 1940s, much of the work at the Alden Hydraulic Laboratory in Holden (now Alden Research Laboratory) centered on then-classified research involving high-speed water entry of projectiles, such as torpedoes, for the U.S. Navy. Here, in a photograph dated from the same period, students use current meters to map the flow upstream of a spillway in order to optimally position a diversion wall. Students frequently conducted course laboratories at AHL, exemplifying the practical application of their classroom theory. The research laboratory was founded in 1894 by George Alden, as an extension of the Mechanical Engineering Department. Today, as an independent entity, it remains the oldest continuously operated hydraulic laboratory in the United States, maintaining close connections to WPI. Students in the ME and Civil and Environmental Engineering departments often use the lab for their MQP research. Additionally, ARL houses a firefighter clothing test facility, sponsored in 2001 by the U.S. Navy's Clothing and Textile Research Facility in Natick, Mass., which is used by WPI's fire protection engineering students and faculty.

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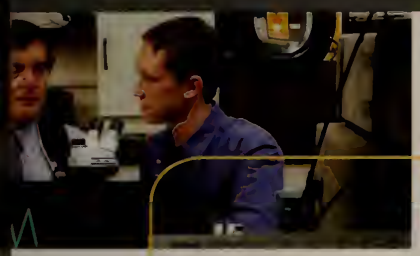

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The following programs are available online: Environmental Engineering, Fire Protection Engineering, Management, and System Dynamics.

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By 1880, Washburn & Moen's North Works was one of the largest factories in America. (The North Works complex includes three groups of buildings, built between 1861 and the 1930s.) Washburn & Moen employed more than 2,000 people and manufactured barbed wire, as well as wire used in textile machinery, telegraph systems, pianos, corset stays, hoop skirts, and in the construction of bridges. Washburn & Moen eventually became part of American Steel & Wire Company, which, in turn, became U.S. Steel. Abandoned in 1943, the complex now serves a diverse group of commercial and small manufacturers. *North Works photograph, circa 1927, courtesy of the Worcester Historical Museum.*

WPI transformations

FALL 2006

A JOURNAL OF PEOPLE AND RESEARCH

Education Innovation

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About the cover
WPI students turn their classroom learning into action in the lab and, literally, in the field. Cover concept by Pamela Mecca. Photography by Patrick O'Connor. This page: photography by Dan Vaillancourt.

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Starting Point

VOLUME 105 NUMBER 1 FALL

WPI transformations

FALL 2006

Teach your children well...

In a previous life, I was a reporter for a daily paper in Connecticut. On one particular evening in the newsroom, I was arguing with my colleagues over some numbers—percentages—that were to appear in a graphic in the next day's paper. We couldn't agree on the correct numbers, or even how to compute them. And all I could think was: We're smart, educated, reasonable adults. Why can't we figure out a simple math problem?

Until recently, I'd chuckle when I thought about that evening. I liked to think that the pressure of our looming deadline had temporarily frozen our brains, rendering us absolutely useless in math. But over the past few months as I worked on this issue of *Transformations*, which focuses on innovative approaches to education—and, more specifically, innovative approaches to math, science, and engineering education in the 21st century—the humor of that moment faded. It began to seem indicative of a larger issue.

According to the National Assessment of Educational Progress, only 17 percent of high school seniors are considered proficient in math. This statistic is just one of the findings in the much-anticipated report from the U.S. Secretary of Education's Commission on the Future of Higher Education.

As we go to press, the commission—19 individuals from academia, business, and government—is finalizing its report, which will recommend a national strategy to strengthen postsecondary education. In a preliminary draft, the commission states that U.S. college graduates are, on the whole, less educated than their counterparts overseas. If the United States is to remain globally competitive, the report says, universities must enhance and improve student learning, an effort that shouldn't be limited to the upper echelons of academia, but shared by everyone—two- and four-year public and private universities, community colleges, and the K-12 system. As I read the draft, I noted two recommendations:

> "America's colleges and universities [should] embrace a culture of continuous innovation and quality improvement… particularly in the area of science and mathematical literacy."
>
> "The United States must ensure the capacity of its universities to achieve global leadership in key strategic areas such as science, engineering, medicine, and other knowledge-intensive professions."

For me, these points suggest that the country needs more schools like WPI, for the university is already well positioned to fully educate the next generation. Our approach to learning, where education is truly put into action, is what has led our alumni to become, yes, scientists and engineers, but also leaders, managers, entrepreneurs, problem solvers, critical thinkers.

The pages that follow offer a sampling of the relevant and vital work being done by those in our community. We sit down with President Dennis Berkey, who talks about the university's progress and the direction we're headed. And to put this article into context, we look back at 35 years of the WPI Plan. We also feature the inspirational stories of various alumni whose work directly impacts the quality of science and engineering education, and the quality of future engineers themselves.

There's more—an intelligent tutoring system designed by a CS professor helps youngsters learn math. And a project team makes a difference in the lives of blind children.

Thanks for reading.

Charna Westervelt, Editor

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WPI

Letters

Teaching with *Transformations*

I was visiting my son, Jason Tolderlund '92, recently and came across a copy of the *Transformations* spring 2006 issue. This fall I will be teaching a class in marine pollution at the U.S. Coast Guard Academy and found the articles on water to be very relevant to several of my planned topics. I plan to use copies of the issue as supplementary reading material for my students.

Douglas Tolderlund
Old Lyme, Conn.

A good approach

To everyone involved with its creation and production, congrats on a terrific issue of *Transformations*. It gives a great insight into WPI's approach to teaching, the relevance of its research, and its great prospects for the future.

I suggest mailing it out to thousands of people in relevant audiences, far and wide. It is much more effective in communicating what WPI is about than radio or television advertising.

Erwin Danneels
WPI Associate Professor, Management

A call to get involved

I'm writing to encourage graduates to help our public schools (K–12) improve their math and science performance. WPI graduates have a great deal to offer public schools and it can be very rewarding to give something back to your community. Volunteering for a school committee, judging a science fair, or becoming a math and/or science tutor does not require a lot of time and you may make a difference in the life of a student. I've enjoyed being a volunteer for a local nonprofit organization (www.LLSTA.org) that visits 5th and 6th graders to discuss what engineers and scientist do at work.

Bill Rutherford '73
Lititz, Pa.

A clean photo

As an '02 graduate of WPI and a daily visitor to the wafer fab clean-room at Allegro MicroSystems in Worcester, I couldn't help but chuckle at the two clean-room pictures in the spring issue. If particle contamination is the concern trying to be prevented by a clean-room, and it usually is, those hoods need to be tucked in. They're not going to do much in the way of preventing skin and hair particles from falling down, onto hands, and onto product, when worn like that.

Brian J. Conway '02
Hudson, Mass.

The photographs do not depict actual operations in the lab but, rather, students modeling the protective outfits for our camera. It appears that our models and photographer have a thing or two to learn about proper clean-room attire. *Transformations* thanks Mr. Conway for pointing out our photographic faux pas. Our readers may feel confident that when it really counts, our lab hoods are tucked in. —Ed.

A model alumnus

I just read the article on Philip Giantris '65 ["Reaching Out to Water Stressed Countries," spring 2006 *Transformations*]. The article was forwarded to me by one of my colleagues who knew that I had worked with Philip in Albania for two years. I want to commend the author, Joanne Silver, for doing an outstanding job of capturing the life and spirit of Giantris. I hope that articles like this will serve as an inspiration and encouragement to other WPI alumni. We need more people like Giantris who will use their talents and training, combined with the perseverance it takes to make it through a demanding engineering curriculum, to make great contributions to the world. This was my first exposure to *Transformations;* I must say that I was impressed by the high quality and vibrancy of the articles, and by the great things that are being done by those who have passed through WPI.

Charles M. Pike Jr.
Wakefield, Mass.

Correction: Yatao Liu, a chemical engineering graduate student, won first place in the life sciences and bioengineering category at WPI's first Graduate Research Achievement Day in March. *Transformations* regrets the misspelling of his name in the spring issue of the magazine.

A message from

Provost Carol Simpson

As I reflect on my first full year as pravast, I am struck by the extraordinary level of commitment fram WPI's faculty and staff, not only to significant advances in research and scholarship, but to the continual enhancement af aur signature programs. For decades, WPI has led the way in developing interdisciplinary and global educational pragrams, and will continue to do so. This type af undergraduate experience is crucial for the next generation of leaders, thinkers, managers, and entrepreneurs.

Far examples of WPI's commitment to interdisciplinary education, I need look no further than the increasingly diverse nature of our unique Interactive Qualifying Projects. I also look to the creation af the highly successful Interactive Media and Game Develapment pragram, which sent farth its first graduate this year and is attracting a large number of new and enthusiastic students. And I laak ta the new Enviranmental Engineering degree pragram, which draws on faculty from the departments of Civil and Environmental Engineering, Chemical Engineering, Mechanical Engineering, and Physics, and allows students ta begin solving environmental problems rather than focus on the degree requirements of a specific disciplinary major.

I am excited to report that we have increased our undergraduate offerings to include System Dynamics and Aerospace Engineering; new graduate programs include System Engineering, Information Technology, and Operations Design and Leadership. Additionally, this year, for the first time, WPI will offer students the option of earning the bachelor of arts degree, an enhancement to our program approved by the faculty last spring. Preparations are also under way for new cross-disciplinary programs in bioinformatics and rabotics engineering, both af which are areas of high demand from industry.

WPI's interdisciplinary emphasis is mirrored in our research activities, since, so aften, salutians ta impartant sacietal prablems require that teams of experts from several disciplines work together. This approach is the future of research at WPI. Its success was seen this year in our record-breaking $16.5 million in externally funded research grants, many of which involve interdisciplinary teams. (Such is the case in the Center for Untethered Health Care, where faculty from three departments—Electrical and Computer Engineering, Mechanical Engineering, and Chemistry and Biochemistry—cooperate to solve critical problems in the remote monitoring of patients.)

External recognition for the quality of WPI's faculty research and scholarship comes in many farms:

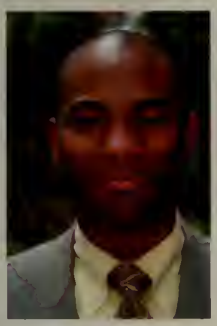
- Jennifer Wilcax, assistant prafessor of chemical engineering, was lauded as ane af only a dozen "New Faces in Engineering of 2006" by the Engineers Week Foundation, having been naminated far this honor by the Natianal Science Foundation.
- Wilcox also obtained a highly prestigious and competitive NSF CAREER award, as did Donald Brawn, assistant prafessar of ECE, and Neil Heffernan, assistant professor of camputer science (see article on Heffernan, page 18). These three professors brought the total number of CAREER awards to WPI faculty to an astaunding 19 since 1995.
- Diran Apelian, Hawmet Prafessor of Mechanical Engineering, received two af the highest honors bestowed by the Minerals, Metals and Materials Society: fellawship in the saciety and the 2006 Bruce Chalmers award for outstanding contributions to the science and technalagy af salidificatian science.
- Michael Sakal, professor emeritus af history, was honored with the 2006 Society far the History of Psychalogy's Lifetime Achievement award for his contributions ta the field.
- Gretar Tryggvason, ME prafessor, was awarded the 2005 Computational Mechanics Award by the Japan Society af Mechanical Engineers.
- David Lucht, director emeritus af WPI's Center for Firesafety Studies, was honored by the inauguratian af the "David A. Lucht Lamp of Knowledge Award" fram the Saciety of Fire Protection Engineers for significant contributions to the advancement of higher education.
- Erwin Danneels, assaciate prafessar af management, received the 2006 Thomas P. Husted award for the best paper published in the *Journal of Product Innovation Management.*
- Bagdan Vernescu, mathematics professor, has been named a Member of Hanor of the Romanian Academy Institute of Mathematics.
- Roberto Pietroforte, CEE assaciate professor, will be granted the rank of Cavaliere Ufficiale in the Order of Merit of the Republic of Italy, far distinguished work and exceptianal service to his native cauntry.

This small selection af the many high honars and awards that WPI's professors have received this year underscores the quality af our faculty and of our programs. I laak forward to sharing mare af their successes with yau in future editians af *Transformations.*

CampusBuzz

New VP of Development and Alumni Relations

In April, WPI welcomed Dexter Bailey to the community as vice president of development and alumni relations, overseeing all fund-raising and outreach activities with the university's alumni.



Bailey most recently directed external relations for intercollegiate athletics at the University of California, Berkeley, where he helped raise $150 million in gifts and pledges for intercollegiate athletics—the most successful fund-raising performance at the university.

Before joining Berkeley, he served as assistant dean for development and external relations at the University of Washington's School of Law and as assistant dean for development and alumni affairs for Ohio University's College of Education. Prior to that, he was press secretary for the Ohio House of Representatives. He earned a BS in Journalism from Ohio University and an MBA from the University of Toledo.

Bartlett Center

[illegible] and Shirley Bartlett [illegible] building named in their honor.

Now home to admissions and financial aid, Bartlett Center opened its doors this spring and a ceremonial dedication was held in June. Located on the east end of the campus quadrangle, the center is named for entrepreneur James L. Bartlett Jr. '39 and his wife, Shirley V. Bartlett, whose donation made the building possible.

Designed by CBT/Childs Bertman Tseckares Inc. in Boston, Bartlett Center is the first building on campus to be registered with the U.S. Green Building Council; it was designed as a "green building" by using sustainable design principles under the Leadership in Energy and Environmental Design (LEED) program, such as using local and renewable building materials, recycling 90 percent of construction materials, reducing energy costs, and, overall, ensuring a better work environment.

"The Bartletts have made yet another impactful and generous contribution to WPI that is having such a transforming effect on this campus," President Dennis Berkey said at the dedication. "I'm pleased that the building is consistent with the values and heritage of WPI."

James Bartlett thanked the WPI trustees for their foresight and commitment to a project that began three years ago. "We're tremendously pleased that the Bartlett name is on the entrance, but we're mindful that there are many other people who were involved to make this happen," he said.

Shirley Bartlett spoke of the continuing influence the building will have on students now and in the future. Commenting on why she and her husband wanted to make a difference at WPI, she said, "We like to do things that are needed."

Collaboration to Regenerate Limbs

WPI and CellThera Inc., a Warcester-based biatechnalagy start-up firm, have signed an agreement ta canduct jaint research aimed at develaping techniques far restaring tissue—including digits and limbs—damaged ar last due ta traumatic injury.

As part af the agreement, Tanja Daminka, CellThera's president and chief scientific afficer, and seniar scientist Raymand Page will hald research faculty appaintments at WPI. The research will be canducted in labaratories an campus and, beginning next spring, in the new WPI Life Sciences and Biaengineering Center at Gateway Park. Faculty members with expertise in tissue engineering, waund healing, stem cells, and related fields are alsa expected to be invalved in the praject.

WPI's Biaengineering Institute directar W. Grant McGimpsey nates that this callabaratian exemplifies the type af industry-university partnerships that BEI and Gateway Park are seeking. "Thraugh these vehicles," he says, "WPI brings tagether scientists engaged in cutting-edge research in the life sciences and campanies and arganizatians that can translate new discaveries inta praducts and technalagies that can imprave the effectiveness af health care and the quality af aur lives."

CellThera is a callabaratar an a multi-institutian research pragram funded by a ane-year, $3.9 millian award fram the Defense Advanced Research Prajects Agency (DARPA), the research and develapment arm of the U.S. Department of Defense.

Inspiring a lifetime of learning
in math, science, and engineering

The WPI K–12 Outreach Program is challenging students to grow academically and is making a difference in educating the next generation of technological humanists.

www.wpi.edu/Admin/K12

NSF Awards WPI Researchers $1.8 million

A research team led by Dalin Tang, professor of mathematical sciences and biomedical engineering, has received a five-year, $1.8 million award from the National Science Foundation to conduct a comprehensive study of the growth, progression, and rupture of human atherosclerotic plaque, a medical condition that is closely related to most cardiovascular diseases, including stroke and heart attack. Cardiovascular disease is the leading cause of death in the developed world.

With the NSF funding, the team will use a combination of computational modeling, MRI (magnetic resonance imaging) scans of volunteer patients, and histological studies of diseased arteries to develop—for the first time—a detailed picture of the physical and biological conditions inside arteries that promote the initial formation of a plaque, and then favor its continued growth. The work will also reveal, in unprecedented detail, the factors that cause plaques to rupture, leading directly to heart attacks and stroke.

WPI mathematicians Joseph D. Petruccelli and Homer F. Walker are also a part of this research team, as are professors and researchers from the University of Washington, the University of California, Irvine, Shinshu University in Nagano, Japan, and Beijing Normal University in the People's Republic of China.

Rocket Man

A new monument to honor Robert Goddard, the first in his native Worcester, was unveiled on a rainy afternoon in May. The monument comprises eight panels that, through text and photos, tell the story of Goddard's life and accomplishments. Goddard, known as the "father of modern rocketry," graduated from WPI in 1908. WPI contributed to the monument's development and donated an informational kiosk to the project.

Meet the Class of 2010

- **780 students—the largest class to date**
- **3.7 average GPA; average class rank in the top 11 percent**
- **1290 average SAT score (on a scale of 1600); 1888 average SAT score (on a scale of 2400)**
- **31 states and 35 countries represented**
- **25 percent women**
- **Top majors include: mechanical engineering, electrical and computer engineering, chemical engineering, biology**

Our Cup Runneth Over

For the second time in three years, WPI captured the coveted Worcester College Cup for the 2005–06 sports season. The cup is presented annually by the Worcester *Telegram & Gazette* to the area school with the highest overall winning percentage in all sports.

Davis to Influence Foreign Policy

Paul Davis, professor of mathematical sciences and former dean of WPI's interdisciplinary and global studies program, has been named a Jefferson Science Fellow by the U.S. State Department.

Davis, along with five other professors from around the country, will lend his expertise to various U.S. department bureaus over the next year, helping shape and influence U.S. foreign policy by serving as an advisor. After his one-year assignment, Davis will remain a State Department consultant for five years.

The Jefferson Science Fellows program was established in 2003 to give science and technology a more prominent role in U.S. foreign policy.

WPI Venture Forum
Dinner with Entrepreneurs
CEI@WPI ALL-OUT Business Plan Challenge
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Strage Innovation Awards
Networking Events
Spotlight on Entrepreneurs
Elevator Pitch Clinics
CEO East Collegiate Entrepreneurship Conference
42 Workshops and 4 Interactive Seminars
Invention to Venture
Weekly Radio Program
Vantage Newsletter
Resources, vast networks, and much more

+

An entrepreneurial mindset

WPI takes entrepreneurship education seriously.

Just how much more seriously is up to you.

Our students are saying great things about WPI's new entrepreneurship programs. But, they want more. To innovate the future of business. You can help them attain the entrepreneurial mindset they need by working with the Collaborative for Entrepreneurship & Innovation in its Entrepreneurial Mindset Initiative.

For information call 508-831-5761 or visit www.wpi.edu/+CEI

Commencement 2006

Andrew Bongs '06 became the university's first graduate in the innovotive Interoctive Media and Gome Develapment program when he received his WPI diplomo this spring. Bangs jained his 937 peers ot the university's 138th Commencement, an Moy 20. This yeor, WPI canferred 641 bochelor's degrees, 267 master's degrees, ond 30 PhD degrees.

Honorory degrees were given to Morion Heard, former president ond CEO of the United Way of Mossochusetts Bay; Tjama Tjivikua, founder ond rector of the Palytechnic Institute of Nomibia, the first technological university in the southwest African natian; and keynote speaker and WPI trustee Curtis R.Carlson '67, president ond CEO of SRI International in Menlo Pork, Colif. An innovatar and technalagy leader, Carlson holds fundomentol potents in the fields of imoge quality, imoge coding, ond computer visian. Mast recently, the Society for Informotion Display owarded him the 2006 Otto Schade Prize in Display Perfarmance and Imoge Quolity.

Corlson spoke to the graduates about the world of obundonce. "Unlike land and other physical resources, knawledge, ideas, ond creotivity ore unlimited. They build on eoch other to create opportunity ofter new apportunity," he said. "Innovotion is now the primory driver of growth, prosperity, ond quolity of life."

Corlson reminded the graduotes thot the world is only abundant to those who have the apprapriate knowledge ond skills. "Fortunotely, yau are amang a rore group thot hos the required skills," he soid. "The WPI Plan is now the model for higher educotion in our globol world. Far you, on exciting adventure is just beginning."

President Dennis Berkey olso tald the graduotes thot they ore well prepored for innovatian, leadership, and achievement.

"I toke much sotisfoction fram the thought thot you hove been well educoted by this deeply dedicated foculty—in courses an the compus, in projects at hame ond oround the world, in theatrical ond musical projects ond performonces, ond in ane-on-one interoctions of many kinds," Berkey soid. "Lifelang learning is therefare mare thon o slogon ot WPI. It is a habit af mind thot arises from the experience of o truly excellent education."

Among the Commencement photos: honorary marshal Jeanine Plummer leads the processional over Earle Bridge; Tjama Tjivikua is presented with an honorary degree; Curtis Carlson delivers the keynote address.

New Deanships Reaffirm Commitment to Education

This summer, Provost and Senior Vice President Carol Simpson announced two senior administrative appointments that reflect the important role of undergraduate education at WPI.

John Orr, electrical and computer engineering professor and former department head, was named dean of undergraduate studies, and Richard Vaz '79, ECE associate professor and associate dean of Interdisciplinary and Global Studies (IGSD), was named dean of IGSD.

"These appointments reaffirm that undergraduate education is at the heart of our mission," Simpson says.

The dean of undergraduate studies position was recreated after an 11-year hiatus. (Bill Grogan '46, professor emeritus of electrical engineering, served as the first such dean from 1970 until his retirement in 1990. Frank Lutz succeeded Grogan until his resignation in 1995.)

The IGSD deanship became open this year after Paul Davis stepped down from the position to begin a sabbatical leave with the U.S. State Department (see story, page 8). "We are renewing our belief that the traditional values and emphasis of WPI's undergraduate education remain as vital as ever," Simpson says.

Both Orr and Vaz bring many years of experience to their respective new roles. Orr joined the WPI faculty in 1977 as an assistant professor of electrical engineering, after earning his PhD in electrical engineering from the University of Illinois, Urbana. He became associate professor in 1981, and full professor in 1986. He also served as ECE department head from 1988 to 2003. In his new role, Orr will be involved in a variety of initiatives, including new developments to enrich the freshman- and sophomore-year experiences.

Vaz arrived on campus in 1975 as an undergraduate; he earned his bachelor's and master's degrees at WPI, as well as his PhD. In 1983, he became an instructor and rose to the rank of associate professor of ECE, a title he has held since 1994. For the past eight years, he has also served as associate dean of IGSD. As dean, Vaz will continue to enhance and support WPI's interdisciplinary and global education.

This summer, *Transformations* spoke with the two colleagues about their vision for undergraduate education in a changing world.

John Orr

John Orr jokes thot, after being named dean af undergraduote studies this spring, one af his first agendo items wos to purchose some new suits.

Of course, when asked obout the appraach he will take ta his new role ot the university, his tane is much mare serious. He talks obout filling current needs, os well os oddressing the longer-term vision. "How do we look to the future, recognizing thot o university doesn't moke mojar changes overnight?" he soys. "On the ather hond, WPI is much more omenoble to chonge than ather schaals."

This summer, Orr porloyed his nearly 30 yeors of experience ot WPI into o role thot will help shope the future of the university's undergroduote pragroms.

"Far mony yeors, WPI hos been much brooder than just engineering, and it will continue to broaden," he soys. "Our jab is [educoting students] who will be leaders, managers, innovotors."

In the lob, Orr hos worked with a team af faculty ta develap technalagy that tracks ond locotes personnel indaars, such as firefighters inside o burning building. On compus, his experience os a professar has given him perspective on the fundomentols of o solid undergroduote educatian. During the undergraduote years, he exploins, students gain o better understanding af themselves ond the world oround them; they goin the knowledge an which they will bose o coreer, ond, in essence, they grow up. "There is so much maturation that hoppens during these four years, inside and outside the classroom," he says. "It's o sacred responsibility far a residentiol university to wark with students in this regard."

In his new role he will colloborote with colleogue Rick Vaz, the newly oppointed dean of IGSD, on o voriety of projects, such as exploring avenues to enhance the freshmon- ond sophomore-year experiences—o concern raised last year from the commissions thot studied variaus aspects of the campus. "Rick and I will be working hond-in-hand and I'm reolly looking forward to that," Orr soys. "WPI is one of the leaders—if not *the* leader—in projects in undergraduate educotion, but there's still roam ta integrote it mare into the rest of the curriculum."

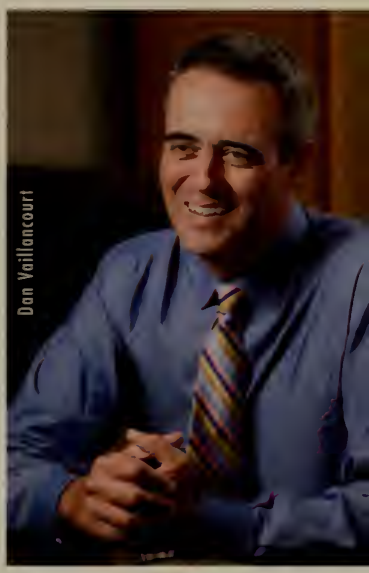
Though moving to the odministrotion side af academio, Orr will cantinue to advise projects; he soys he looks forward to maintaining his invalvement with the Silican Valley project center. "The reason we're oll in educotion is the students and thot sense af mutuol fulfillment when students occamplish something," he says. "I don't expect to get too far away fram that."

—Charna Westervelt

Richard Vaz

"I've porochuted into a large and extremely well run aperation," Rick Vaz says af his new past. "I dan't plon to come in and make sweeping changes. I'm going to toke the time to leorn how things ore done, ond keep o gentle hond on the rudder, especiolly for the first yeor."

With his decades of rich experience at WPI ond his expertise in issues such as higher educatian refarm and the internatianalizatian af engineering educotion, it is no surprise thot Voz oppreciotes the smooth-running IGSD, os well os its signoture role ot the university.



Indeed, IGSD's Globol Perspective Program has wan the university considerable recagnition. The program was cited by the Assaciatian of American Calleges ond Universities in 2000, when it named WPI ane of 16 Greoter Expectations Leadership Institutions. In 2002, the university wos recognized by NAFSA: Association af Internatianal Educatars for "doing exemplory work to internotionolize the compus." And in 2003, TIAA-CREF recognized WPI with the Theadare M. Hesburgh Aword, which honors ocodemic programs that enhonce undergraduate teoching ond learning.

As dean, Vaz will keep his finger on the pulse of students' WPI experiences by carrying on with his lang-standing rale as odvisor to scores of undergrods. "I olsa hope ta cantinue gaing averseas ta wark with students ot the project centers," soys the professar who has maintoined o frenetic schedule working an projects in Ireland, Namibia, and Thoiland, omong other locotions. "But far this first yeor as dean, I plan to stay closer to home."

While he's oround, Voz will roll up his sleeves to colloborote with his longtime colleogue Jahn Orr an undergraduote curriculum development. On this front, Vaz feels particulorly fired up obaut early undergroduote educotian. "I believe that much af what we da in the IQP ond globol progrom is exoctly whot our first-yeor students need: training in criticol thinking ond problem salving, ond in writing and research skills," he says. "I'll be very interested in exploring with Jahn and athers haw we con integrote elements af the IGSD's educotionol strotegies mare fully inta the curriculum."

Stepping bock for a longer view, Voz says, "I am thrilled ta be part of this historic mament at WPI."

—Eileen McCluskey

Entrepreneurship

By Eileen McCluskey

Music to Their Ears

Wherever he goes, Richard Resnick builds businesses. In his latest venture, the serial entrepreneur hopes to make beautiful music—or, more specifically, cell phone ringtones—with the 13- to 18-year-old set.

Richard Resnick '98(MS) is president and CEO of Harmony Line—the parent company of H-Lounge.com, a new Web site where teenagers can chat, play games, and compose and upload their own ringtones.

"It's hard for most middle-aged people to 'get' the attraction of ringtones," Resnick says with an easy laugh. "But what kids want, we discovered through many focus groups, is portable music on the smallest, most personal devices possible, to impress their friends." Focus groups also revealed that kids enjoy composing their own ringtones, then earning money and gaining prestige by selling their creations.

Harmony Line got its start in 2004 to sell Hyperscore, software designed by famous musician, composer, and Harmony Line chairman Tod Machover. Created for children with no musical education, Hyperscore allows anyone to compose complex scores by drawing colorful lines and using intuitive harmonization tools.

Not so intuitive, Resnick found, was the issue of turning cool software into cold cash. "The software works really well, but how do you make money with it? That was, and is, our challenge," he says. Harmony Line tried and discarded strategies such as selling Hyperscore directly to schools and parents. Both approaches yielded disappointing revenues.

Then came the "Eureka!" moment. Rather than develop a company around a piece of software, Resnick and partners decided to build around consumer trends. "We found two major trends related to Hyperscore," he notes. "The enormous ringtone market, and online social networks." The cell phone ringtone market—composed of $1 and $2 downloadable purchases—is burgeoning from a $4 billion worldwide market in 2004 to an estimated $6 billion behemoth in 2007.

Heeding their target market's feedback, Harmony Line launched H-Lounge.com in December 2005. Like Resnick's other enterprises—life sciences–related Mosaic Bioinformatics and Biological Energy Corp.—cutting-edge technology forms the heart of Harmony Line and H-Lounge.com. But unlike the other start-ups, H-Lounge focuses almost exclusively on fun. Modeled after such hits as Neopets.com, H-Lounge lets 13- to 18-year-olds chat and play games. Kids can also pursue their dreams of becoming rich ringtone composers by downloading Hyperscore, then creating and uploading their compositions, all for free. Money starts changing hands when the users buy and sell ringtones. Anyone can sell their ringtones via a revenue-sharing deal that earns the seller 30 cents on the dollar. H-Lounge mails checks to the musician through another Internet denizen, PayPal.

Most kids don't have credit cards, but H-Lounge found a way around that barrier: through charges on the parents' mobile phone bills. Not surprisingly, "the legal end of this business is the most expensive part," reports Resnick. Parental consent and child labor laws presented two pricey issues.

To garner advice from other entrepreneurs as he climbs his self-described "steep learning curve," Resnick recently returned to WPI as a Venture Forum case presenter. "When you present your ideas in front of 50 smart people, you get great feedback," he says. "It forces you to think about whether what you're saying makes sense."

So far, H-Lounge does. "We expect revenues to hit seven figures in the next 12 to 18 months," Resnick says. H-Lounge so far boasts 10,000 active users who have uploaded 20,000 original ringtones.

Any wealthy kid composers? Not yet. Says Resnick, "some kids have made $100. I figure we'll make the front page of the *New York Times* when one of them earns $1,000."

Sunny Side Up

There's no question that Sanjeyan "Sunny" Manivannan '07 is a math major. Ask for his cell phone number and he's quick to point out that the digits almost equal Pi. (3.14...)

Sunny Manivannan—one part math major, one part mechanical engineering major—is the latest WPI student to be named a Goldwater Scholar by the Barry M. Goldwater Scholarship and Excellence in Education Foundation. Since 2002, eight WPI undergraduates have received the prestigious scholarship, which recognizes outstanding students and encourages them to pursue careers in math, science, and engineering.

"[The scholarship] motivates me to do better," says the 20-year-old. "I like doing the best I can."

Born in Chennai (formerly known as Madras), India, Manivannan and his family moved to Framingham, Mass., when he was 12. "My parents came here in part for my brother and me. There's a lot more opportunities for students here."

Indeed, Manivannan has taken full advantage of such extracurriculars. He played tennis in high school—and continues to play non-competitively—and he is currently president of WPI's Student Government Association. "I like helping the community that I live in," he says.

As SGA president, he sat alongside WPI trustees and senior administrators last spring, when he took part in the semiannual Board of Trustees meeting. "It was surreal that I could talk to all these people who change the world," he says.

Several weeks later, Manivannan spent time with WPI trustee Carleton F. Kilmer '64, retired senior partner of Accenture, who encouraged the young man to go to business school. While Manivannan has been considering a PhD in computational fluid dynamics, the idea of business school piqued his interest. "The more I study and the more I expose myself to different things," he confesses "the less decisive I am about my future."

This summer, as an intern at GE Aviation's stress analysis division in Lynn, Mass., Manivannan helped design and modify different engine lines. Last summer, he worked in the facility's heat transfer division. "They get you right in there and show you the ropes," he says. "You're actually doing the work that they're doing."

As a senior this year, Manivannan will finish a project in which he and Charles Gammal '08 are looking at the feasibility of a multidisciplinary engineering major that combines mechanical and electrical engineering. "We hope to see it in the course catalog sometime in the next decade," he says. "Hopefully, we'll make a difference at WPI." —*CW*

By Rachel Faugno

Playing Blind

Child's play is serious business. That's why three WPI students are working to ensure that all kids can benefit from games that unintentionally exclude the visually impaired.

By playing with others, children develop many of the skills they will need to succeed in the adult world—skills such as observing, reasoning, planning, persevering, interacting, and communicating. Many games also promote physical health and improve motor skills. But visually impaired children are often excluded from games enjoyed by their sighted peers, limiting their involvement in beneficial play activities.

WPI seniors Erika Hall, Ryan Lizewski, and Elizabeth McCoskrie addressed this problem through a project focused on developing toys for blind children. The students spent eight weeks in Copenhagen last spring, working in cooperation with Denmark's Visual Impairment Knowledge Center.

"This project was profound for me," McCoskrie reflects. "As engineers, we like to quantify, to work with numbers. The social sciences are so different. You can't take a black-and-white approach."

The students' objective was to develop ways of promoting play between blind and sighted children, using toys designed specifically for the blind. "Studies have shown that visually impaired children tend to play more with adults or caregivers than with peers," notes Hall. "This can lead to social isolation, which in turn may engender other developmental difficulties."

The team's goal was to address these problems by understanding how toys facilitate social interaction between blind and sighted children, explains project advisor Ruth L. Smith, professor of religious studies. "They determined that one of the most effective ways to achieve this is through the development of toys designed specifically for blind children," she says. "Although a number of play products have been adapted for the visually impaired, those adaptations do not necessarily promote the social interaction we were looking for."

A truly successful game, Lizewski points out, is one that creates a level playing field and is interesting for all players. But an assignment that seemed relatively straightforward at

first became more complex as the students dug deeper. "We spent a lot of late nights brainstorming ideas for games that would be equally appealing and accessible to blind and sighted children," Lizewski says.

The WPI students were aided in their research by the Perkins School for the Blind in Watertown, Mass., which provided access to its resources and facilities before the students went abroad. They toured Perkins's specialized toy and game workshop as a preliminary step in their background research.

Once in Copenhagen, the students received further support from the project's sponsors, who helped set up focus groups with parents of blind children and facilitated access to local schools.

"Denmark has given significant attention to distinctions in early childhood, with the goal of societal inclusion," Smith explains. "Blind children are incorporated into local classrooms, with the help of an aide. Educators and specialists who work with the visually impaired often have to develop their own play materials."

She says that one of the biggest challenges for the students was to imagine the existential situation of blindness. "There are qualitative differences between visually impaired and sighted people's experiences of the world," she notes.

To better understand those differences, the students visited "*Dialogue in the Dark*," an exhibit presented by a science museum in Copenhagen. "We were in a completely dark room for 50 minutes," Lizewski recalls. "We each had to depend on a cane and other people to get around. It was incredibly challenging, but it helped us understand what blind people go through every day."

Despite the commonalities of blindness, the students also recognized that there are as many differences among blind children as among sighted children. "Temperament and personality were important factors, and some children integrated and played more easily than others," McCoskrie recalls.

"We all learned not to be absolute," Hall adds. "We couldn't assume that because a child was blind, he or she would respond in the same way as another blind child."

Instead of focusing on the limitations presented by visual impairment, the students chose to emphasize elements of play that all children enjoy. "Kids like games that give every player the chance to win or lose," Lizewski says. "So, one of our creations was a game of 'Go Fish' that uses fabric pouches instead of playing cards. The pouches contain marbles, buttons, and other items that players have to identify and match by using their hands. It's the same game whether you're blind or sighted."

Another invention was a magnetic game board fitted with wooden spacers. Because visually impaired children use tactile scanning methods to envision the arrangement of a game board, they can knock over and move pieces unintentionally. "Velcro, magnets, or a peg-and-groove system help stabilize the game," Hall explains.

The students also created an audio CD to replace dice or spinners that prompt moves around a game board. "Kids tend to like noise, and a game that produces music and other sounds is attractive to many of them," McCoskrie points out.

Their research culminated in producing a guidebook that will be translated into Danish and posted on the Visual Impairment Knowledge Center's Web site. It also will be made available to the Perkins School.

"We really thought about how our work affects the community," Lizewski says. "That's something I'll take with me wherever I go."

"As engineers, we like to quantify, to work with numbers. The social sciences are so different. You can't take a black-and-white approach."

Opposite page: Erika Hall, Elizabeth McCoskrie, and Brian Lizewski are all Kaufman Teams. Below: Glass marbles are glued to the board of the game allowing for differentiation between containers. The game is played with a tactile die. Users strategize their way through the Danish landscape.

The **Big** Picture

By Joan Killough-Miller

Life & Death Matters

Anne St. Martin, armed with a double major in chemistry and international affairs, is poised to change the world. Conquering a growing health crisis is first on her agenda.

It's the kind of statistic that stops you in your tracks: Every day, 37,000 people die from treatable infectious diseases.

That's not what Anne St. Martin came to WPI to learn. A native of Ontario, Canada, she came to study chemistry and prepare for a career in the pharmaceutical industry. She saw intellectual property (IP) as a legal specialty that would reward her with a comfortable lifestyle—one that would allow her to indulge her passion for horseback riding. Time with horses was something she'd always had to work for, starting with her first stable jobs at age 12. With a good career in IP, St. Martin thought she might be able to afford a farm of her own one day.

But she graduated last May a changed person. Her revised goal is to work for change in IP legislation, to ensure that essential medications will be available to needy people in developing nations. It was her global education—which included projects and course work in seven different countries—that altered her worldview and opened her eyes to a growing health care crisis.

"I think that deep down, people really do care—
it's just that we're sheltered here. If more people could see for themselves
what the rest of the world is really like,
then I think they would try to work for change."

Patrick O'Connor

"I was always keen on traveling," says the alumna. "I knew that I would definitely take advantage of the Global Perspective Program."

In fact, she may have set some kind of record for passport stamps on a WPI diploma. She did her Humanities Sufficiency in German language and culture at the Technische Universität Darmstadt, and her chemistry MQP at École Nationale Supérieure des Industries Chimiques in Nancy, France. In between, she spent a summer in Russia, participating in a Chemistry Research Experience for Undergraduates at Moscow State University. But it was her projects in Africa and Asia that affected her most profoundly.

In Windhoek, Namibia, St. Martin's IQP team worked out an equitable water pricing system for residents of informal settlements in that impoverished, arid region. "Seeing those settlements and working with the people there changed my whole perspective," she says. "After going to Namibia, I thought, 'I have all these opportunities. I should do something besides going to work for a pharmaceutical company.'"

Back at WPI, she began researching global health care issues and factors that make treatment unaffordable and unavailable in the developing world. Her research led her to Colombo, Sri Lanka, where she interned with Health Action International Asia-Pacific (HAIAP) for her MQP in international studies. She also assisted with an international conference in Dhaka, Bangladesh, cosponsored by HAIAP, called *"The Future of Health Services: Who Will Live and Who Will Die."*

Her MQP report brings together disturbing statistics on poverty and lack of health care in developing nations with information on recent IP legislation governing the pharmaceutical industry. She focused on the World Trade Organization's agreement on Trade Related Aspects of Intellectual Property Rights (commonly called TRIPS). There is growing concern among health care advocates that the agreement, which was designed to protect patent rights of corporations, is making essential medications unaffordable and inaccessible in the developing world.

"Anne shows how some simple reforms of TRIPS would ensure that the intellectual property rights of pharmaceutical companies are still protected, at the same time allowing developing nations to produce generic versions of essential medicines that, daily, could save the lives of thousands of their poorest citizens," says Bland Addison, associate professor of humanities and arts, and St. Martin's project advisor.

The well-traveled alumna's dream is to set up a nonprofit network of experts who would serve as a resource on IP issues to developing countries. "What I would like to do eventually is work within the UN, specifically for WIPO (World Intellectual Property Organization), where I could give voice to the concerns of the developing countries," she says. To help accomplish that goal, this fall she begins the joint JD/Master of IP program at Franklin Pierce Law Center, in Concord, N.H.

St. Martin remains thankful for all the educational opportunities she's had, and for the support of WPI's faculty and the Interdisciplinary and Global Studies Division. "Show me another university where you can complete a double major in four years and study for two months on five different continents," she challenges. "It was such an incredible experience."

"At school, I realized that life is bigger than horses," she says. "I still love them. They keep me sane and make me happy." She has attained a rare balance that she will carry into her future life, which she expects will include a home, a family, and even horseback riding.

"I don't think it's wrong or bad to live the way we do, or to have the careers we have," she contends. "I think that deep down, people really do care—it's just that we're sheltered here. If more people could see for themselves what the rest of the world is really like, then I think they would try to work for change. That's why WPI projects are so important."

Assessing the Odds

Meet Ms. Lindquist. As middle-school algebra teachers go, she is remarkably calm, patient, and even-tempered. Wrong answers never phase her. "Let's break this down," she says when presented with a first attempt that misses the mark. Step-by-step, she walks the student through the problem until the answer seems clear. Then, with that small hurdle cleared, it's on to the next problem and the next learning milestone.

It's a winning approach, one Ms. Lindquist has used with thousands of students across the country. Who is this remarkable teacher? "She" is a computer program, a complex, patented collection of code developed by Neil Heffernan, assistant professor of computer science at WPI, while he pursued his PhD at Carnegie Mellon University. Ms. Lindquist (named for the real-life teacher—now Heffernan's wife—who served as the model for the program) was Heffernan's first voyage into the field of intelligent tutoring systems, an area that has been his focus—some might say his obsession—ever since.

For the past three years, with funding from the U.S. Department of Education, the Office of Naval Research, the National Science Foundation, and other agencies, Heffernan and a small army of graduate students and undergraduates have been developing a computerized tutoring system that helps 8th-grade students learn the math skills they need to pass the MCAS (Massachusetts Comprehensive Assessment System), the state's mastery test.

The MCAS system represents a significant advance over Ms. Lindquist. Like the earlier program, it helps students master math concepts by breaking them into steps and responding appropriately to correct and incorrect answers. But it also monitors and provides feedback on how individual students and entire classes perform on specific test items and on the 98 math skills required to complete those items. Because the system combines assistance with assessment, Heffernan calls it ASSISTments.

ASSISTments draws heavily on Heffernan's expertise in artificial intelligence and is built on a solid foundation of cognitive psychology. Before he built Ms. Lindquist, Heffernan did "think-aloud" studies with students, a technique pioneered by his Carnegie Mellon professors. He'd give the kids algebra problems and ask them to think aloud as they tried to solve them. If they stopped talking for five seconds, he'd prompt them to start again. It was a way of peering inside the black box of the brain to see how thinking really works.

Heffernan built computer models that simulated the techniques different students used to solve math problems. In time, the models were able to predict the performance of individual students.

"If you can do that," he says, "then you want to build a tutor that can say, 'It looks like you are solving the problem *this* way; let me tutor you *that* way.' Because a tutor can track an individual student's progress, you can do mastery learning—having students practice one skill until they've mastered it."

Heffernan put Ms. Lindquist on the Web and made it available for free to any school that wanted to use it. As kids used the tutor, data flowed in about how they used it, and how well they learned. The feedback enabled him to continually fine-tune the program and study its effectiveness. He calls this "data-driven education," something he says is all too rare.

"We do a hell of a lot more work to verify that a drug is safe than we do for any educational intervention," he says, noting that the U.S. Department of Education (most notably through the No Child Left Behind mandate) is pushing hard to get schools to focus more on data. "They want to transform education into an empirically based science."

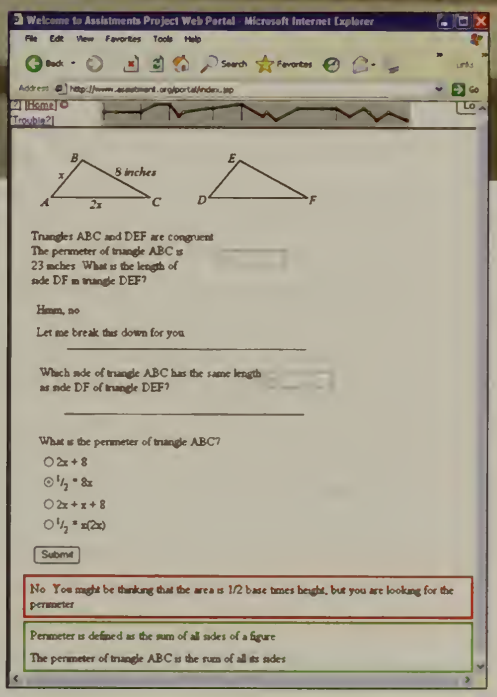
From the start, Heffernan says he wanted ASSISTments to revolve around the notion of feedback: to help students learn, to help teachers better understand the learning needs of individual students, and to help principals gain a more complete and immediate picture of their classrooms. ASSISTments records the results of each student session and provides reports that teachers can use to adjust their classroom teaching.

Heffernan says he is excited by the wealth of opportunities ASSISTments provides for educational research. In fact, the software has provided fodder for several undergraduate projects and a wide range of research by graduate students. One WPI student, for example, noticed that some middle school students seemed to "game" the system, just clicking through the hints or guessing randomly. He developed software that can detect the behavior and prod students to get them back on track. He also developed a graphic that appears atop every student's screen to help teachers quickly identify and aid those who seem to be struggling.

"I want to make mathematics education research drastically better," Heffernan says with the passion of someone who has, himself, been on the educational front lines. Indeed, he ran a tutoring program for 6th graders in Holyoke, Mass., while an undergraduate at Amherst; he also taught 8th grade math and science in Baltimore through Teach for America, and taught for a year in Sudbury, Mass., before joining WPI.

After three years of development, testing, and refinement, ASSISTments may be ready for its next big trial. Currently only available to Worcester public school students, Heffernan would like to roll out the program statewide. He points to studies that show that tutoring—even by an intelligent tutoring system—produces "insanely better" results than classroom teaching alone. "So our schools could do a lot better."

With the assistance—and assessment—of ASSISTments, they almost certainly will.


Welcome to Assistments Project Web Portal - Microsoft Internet Explorer
Triangles ABC and DEF are congruent
The perimeter of triangle ABC is
23 inches What is the length of
side DF in triangle DEF?
Hmm, no
Let me break this down for you
Which side of triangle ABC has the same length
as side DF of triangle DEF?
What is the perimeter of triangle ABC?
2x + 8
1/2 * 8x
2x + x + 8
1/2 * x(2x)
Submit
No. You might be thinking that the area is 1/2 base times height, but you are looking for the perimeter
Perimeter is defined as the sum of all sides of a figure
The perimeter of triangle ABC is the sum of all its sides

Students in Paul Kings Forest Grove Middle School in Mass were [illegible] ASSISTments. Their feedback was [illegible] back from two other Worcester [illegible] Neil Heffernan develop the types of questions that are the heart of the intelligent tutoring system.

Dennis Berkey began his tenure as WPI's fifteenth president on July 1, 2004. We caught up with him shortly after Commencement 2006 to get his assessment of his first two years in office, and his views about what lies ahead for WPI.

Imagine and Achieve

A Discussion with President Dennis Berkey

How has your experience as WPI's president been thus far, and what do you see as your administration's chief accomplishments during its first two years?

I have thoroughly enjoyed this initial phase of my presidency. Much is written about how complex and difficult the job of a university president has become. What is often overlooked is the joy of daily interaction with excellent students, faculty, and staff. This is an outstanding community of talented, loyal, and highly productive individuals with whom Cathy and I are very pleased to be associated.

Of course, a new president is always greeted with a host of expectations and challenges, both foreseen and unexpected. The trustees had made clear their interest in securing strong leadership to take WPI to the next level, so to speak. Early conversations with faculty and staff revealed a number of widely shared ambitions and concerns that we began addressing right away in the seven presidential commissions. The Worcester community was eager to have WPI more actively engaged in civic affairs, and I was appointed to a number of boards and invited to address many groups and organizations.

Much of my time has been spent reorganizing and strengthening the senior administration, making several strong internal promotions, retaining other key leaders, and recruiting excellent professionals to important positions. We now have in place an outstanding team of talented professionals who have strengthened WPI's financial operations and performance, dramatically increased applications for undergraduate admissions, and begun improving communications with WPI's many constituencies, including our alumni.

We have also made significant progress in strengthening WPI's academic programs. Our new WPI Life Sciences and Bioengineering Center at Gateway Park, scheduled to open in April, will provide marvelous facilities for research and graduate education in these fields. And WPI's Bioengineering Institute is actively engaging entrepreneurs and companies with our research projects and faculty.

Two of the presidential commissions have made excellent progress mapping reforms that will greatly strengthen general education at WPI. Additionally, the WPI Little Theatre, which opened last November, provides a permanent and exclusive venue for our wonderful dramatic productions.

You have spoken about your interest in further developing the life sciences at WPI. Why is this important, and how will this be done?

Life science is the new economy for Massachusetts, and WPI—through our core strengths in engineering and science—can make great contributions to the economic development of our region and to improvements in the quality of life. We are thus investing in this area by building the new WPI Life Sciences and Bioengineering Center at Gateway Park, by adding relevant faculty, by deepening our collaborations with the University of Massachusetts Medical School in research and graduate education, and by strengthening our capabilities for technology transfer and commercialization.

Does this new emphasis on life sciences imply a shift from WPI's traditional role in engineering education?

Not at all. Part of a president's responsibility is to look for new opportunities to apply an institution's strengths and develop its potential. As I wrote in the previous issue of this magazine, the core of engineering and science at WPI remains strong, as will the administration's support for it. Mechanical engineering continues to be our most popular major for undergraduates, including programs in aerospace engineering, robotics, and systems engineering. Our Metals Processing Institute is known worldwide for its innovations

Dan Vaillancourt

Administrative Group members, *from left, front row,* Linda Laaft, Assistont VP, Government ond Community Relations; Carol Simpsan, Seniar VP ond Provost; Dennis Berkey, President ond CEO; Dexter Boiley, VP, Development and Alumni Relatians; *secand raw,* Jeff Salaman, VP, Finance, ond CFO; Chris Hordwick, VP, Marketing and Communications; John Miller, Associate VP, Physical Plant; Tracy Hassett, Associate VP, Humon Resources; Tom Lynch, VP, Informotion Technology; Stephonie Posho, Director of Operotions; *third raw,* Kristin Tichenar, Assaciote VP, Enrollment Management; Steve Hebert, University VP; Stephen Flavin, Assaciate Pravast and Dean, Carparate and Prafessianal Educotian; Jonet Richordson, VP, Student Affoirs ond Compus Life; D'Anne Hurd, Generol Counsel ond VP, Business Development ot Gotewoy Pork.

in powder metallurgy and its leadership and support for the entire metals processing industry. Faculty in chemical engineering, electrical and computer engineering, and civil and environmental engineering are doing important, fundamental, novel work—exploring alternative energy sources, developing new imaging and diagnostic technologies, advancing highway design and traffic safety, the list goes on. I am very pleased to see not only the strength of the research and academic programs in such disciplines, but also the degree of interdisciplinary collaboration on campus and with other institutions.

The university has some strong forward momentum right now—from Gateway Park and Bartlett Center to faculty involvement in the commissions' work to study critical issues at WPI. From your perspective, where is the university headed?

WPI's historical commitment to *lehr und kunst* and the structure of the WPI Plan will continue to guide the institution's evolution, adapted to today's and tomorrow's challenges. Young people preparing for careers in our increasingly technological world will benefit greatly from knowledge of science and technology, excellent communication and critical thinking skills, an appreciation for other cultures and for the values of the arts and humanities, and the ability to work cooperatively with individuals of differing talents and personalities. These are precisely the attributes instilled by the WPI Plan and our global studies program. Thus, our approach to reforming the undergraduate program will be one of evolution, not revolution.

We will, however, broaden the range of undergraduate majors to include programs within traditional fields, such as robotics; interdisciplinary programs within science and engineering, such as environmental engineering or bioinformatics; and programs outside of, but related to, the core of science and engineering, such as communications, scientific and technological writing, health science, architectural engineering, and entrepreneurship. This broadening will make WPI more attractive to a larger number of students, realizing that the number of American high school graduates interested in majoring in science and engineering is decreasing. Simply put, this form of education is superbly appropriate for smart young people preparing to make a difference in the world.

We are honing the first-year experience, which was one of the recommendations that resulted from the work of the presidential commissions. We are looking to reduce the use of traditional lectures, add broader, more integrative work to emphasize communication and critical thinking, increase the use of instructional technology, promote early involvement with projects, and broaden student involvement in the arts and humanities.

If you understand and appreciate the power of science and technology, and if you want to make a difference in the world, then there is no better place for your education than WPI.

We will continue to increase our activities in research and graduate education, producing the scientific and technological innovations on which our economy and our health care system are so critically dependent. These interdisciplinary programs will reflect the nature of the problems to be solved.

The campus will become increasingly attractive with the addition of modern, apartment-style residence halls, expanded recreation and fitness facilities, and renovated and expanded library and academic facilities. One or more new academic buildings will no doubt appear, as a number of our programs, including Fire Protection Engineering and the MBA in the Management of Technology, continue to grow.

The overall vision for WPI will continue to emerge through ongoing discussions with the faculty, staff, students, alumni, and trustees. But I see two overarching aspects that will guide us. One is the increasing importance of innovation as a central characteristic of our work together. The WPI Plan and the global studies program enable students to use their powers of imagination and creativity to recognize and solve important problems. But scientific knowledge and technological competence alone are no longer sufficient to keep our nation's industries, or its graduates, competitive in the global marketplace. The critical differentiator will be the ability to imagine and achieve the novel approaches, methods, techniques, technologies, and products that go beyond the predictable and that meet real and future economic or social needs. The WPI experience is well positioned to foster this essential aspect of innovation.

The other imperative is to embrace entrepreneurship more fully as an explicit part of our mission. Already, a large percentage of WPI graduates go on to develop products and technologies, found companies, and assume leadership positions. We should ensure access for students and alumni to the resources and knowledge they will need, such as is currently provided by the WPI Venture Forum and the courses in entrepreneurship. WPI has a long and distinguished history of fostering and leading economic development, so an appreciation for entrepreneurship is not something new for WPI. We must ensure that it is a recognized and valued characteristic, shaped appropriately for present conditions and opportunities.

In your Commencement remarks, you urged students, specifically graduate students and doctoral degree recipients, to use their focused degrees as an opportunity to think broadly, rather than to limit themselves by the scope of their specialization. Is this concern another reason why you see WPI's need to broaden its programs and mission?

Yes, you grasp it perfectly. The danger of specialization, especially for PhD candidates, is that the individual may see himself or herself as qualified to make meaningful contributions only within his or her narrow area of specialization, when just the opposite is true. For example, the revolution in biology over the past 30 years has attracted individuals with degrees from many fields outside the life sciences, including the physical sciences, mathematics, and computer science. Similarly, WPI's academic programs, although they center on science and technology, provide excellent preparation for students to succeed inside and outside science and engineering.

Scientific knowledge and technological competence alone are no longer sufficient to keep our nation's industries, or its graduates, competitive in the global marketplace. The critical differentiator will be the ability to imagine and achieve the novel approaches, methods, techniques, technologies, and products that go beyond the predictable and that meet real and future economic or social needs.

WPI is actively engaged in raising diversity awareness on campus. We are reaching out to students who might not previously have considered applying to WPI. How will the university continue this momentum and why are these efforts important?

We have started at the top by significantly diversifying the senior leadership team. That sets the tone and signals the depth of our commitment. We continue to make the recruitment of a diverse faculty, staff, and student body a high priority; we are making steady progress, although we have a long way to go.

The importance of having such diversity lies in the essence of what a university is—an institution dedicated to excellence in all aspects of human development. If we fail to welcome and support outstanding individuals, both women and men of all races and ethnicities, then we fail to take full advantage of the best talent available. We also fail to provide convincing role models for individuals undecided on whether WPI is a community welcoming and supportive of all worthy individuals.

You have mentioned strengthening relations with alumni as an important goal, and you have made some administrative changes in the area of alumni relations. What is your commitment and plan in this area?

Alumni comprise the university's largest and most important constituency. They represent, and have experienced, much of WPI's history, and many of our alumni have been actively engaged and deeply committed to advancing the university as trustees, donors, volunteers, and key supporters in many ways.

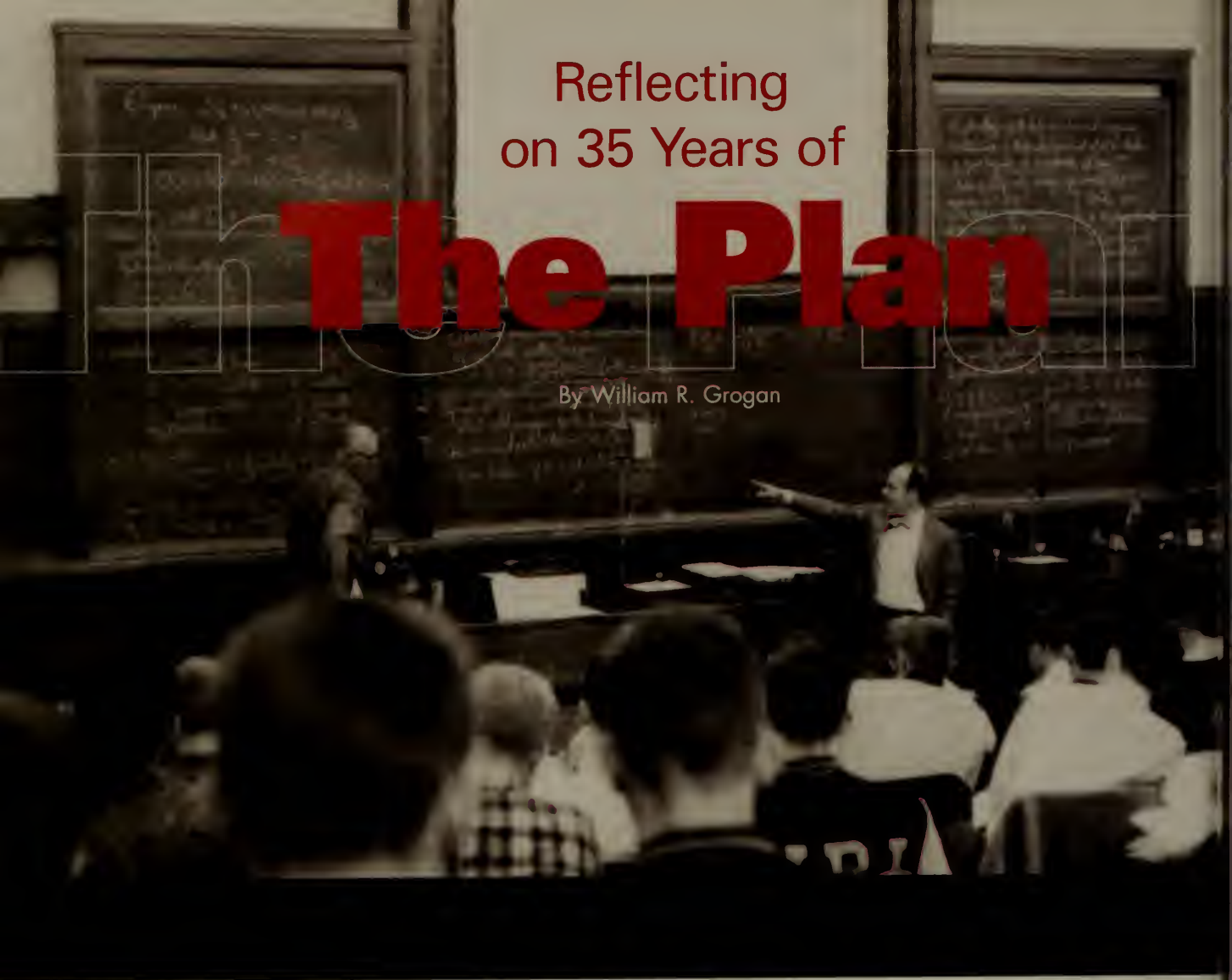
To serve our alumni more effectively, we have elevated the position of director of alumni relations to assistant vice president status and integrated the Office of Annual Giving under this new position. We are offering several new benefits to alumni, including new regional clubs, more frequent communications, and increased career development services. I hope that we can use our strong distance education capabilities to bring interesting programming from the campus to alumni worldwide. In my travels and in our events on campus I have greatly enjoyed meeting our alumni. I find them highly enthusiastic and supportive of WPI, and I look forward to meeting many more of them in the years ahead.

Why is WPI important, and what motivates you to meet the daunting challenge of leadership?

If you understand and appreciate the power of science and technology, and if you want to make a difference in the world, then there is no better place for your education than WPI. If you want to be part of this educational process as a faculty member, and if you want to do research that leads to truly important innovation in a highly collaborative environment, then WPI is an excellent place to make your career. If you are a citizen of Worcester, you know how important WPI is to the continuing economic development and quality of life in this marvelous city. All of us associated with WPI appreciate, and are motivated by, these qualities, and we relish the opportunity of working in such an important, collegial, and rewarding academic community. ■

Reflecting on 35 Years of The Plan

By William R. Grogan



In 1967, 10 years after Russia launched Sputnik into space, a storm was brewing at WPI. At a faculty meeting, the late Bill Shipman, chemical engineering professor, suggested a movement for the university to study its very nature and institutional purpose. And so began a remarkable series of meetings, debates, and heated interactions in which the WPI community, led by a group of visionaries, created a revolutionary new curriculum, the WPI Plan.

Certainly, everyone didn't agree with the tenets of the Plan; but no one can argue that it has provided a foundation from which the university continues to evaluate and improve its curriculum. On the 35th anniversary of implementing the Plan, *Transformations* asked Bill Grogan '46, professor emeritus of electrical engineering and dean emeritus of undergraduate studies, to reflect on the past four decades.

On the afternoon of May 10, 1970, after many amendments and fiery predictions, the faculty, in a great leap of faith, voted 92–48 to adopt the WPI Plan as the university's irrevocable path to the future. I was appointed dean of undergraduate studies by President George Hazzard, with his three-word job directive: "Implement the Plan."

Historically, changes in education arrive piecemeal. WPI, however, designed an entirely new system of education to meet established objectives. These objectives emphasized developing students' creativity and responsibility through a highly flexible curriculum. A competency examination and qualifying projects—including the Interactive Qualifying Project (IQP) to relate science and technology with human values and social need—were established for academic accountability and were required for graduation.

Projects, especially the IQP, were to be performed, when possible, at appropriate off-campus sites. There was a new grading system with only two grades (no F grades or GPAs). And, to accommodate the anticipated thousands of project registrations, we implemented a unique undergraduate calendar with seven-week terms. After 10 brave but traumatic years, the competency exam was replaced by course distribution requirements. The grading system reverted to using letters, but still without an F grade. Remarkably, little else of a critical nature was changed.

Other institutions expected—perhaps even nervously hoped—that WPI would lose its standing with the Accreditation Board of Engineering and Technology (ABET). We not only maintained full accreditation, but we lived to see some of our ideas imbedded in ABET's criteria.

The disciplinary Major Qualifying Project grew steadily in quality and sophistication. Today, a number of MQPs are even of master's degree quality. Many students report that their off-campus project is the most influential experience of their WPI careers. In fact, WPI leads the nation in the number of students we send abroad. Today, students earn credit at project centers on five continents, where they blend technical and social research to solve critical problems. On campus, courses in all the departments have grown in number, quality, breadth, and depth.

It has often been said that the WPI Plan was 25 years ahead of its time when it was launched. Now that 35 years have passed, not only has technology transformed in substance, but its effects upon society have been explosive. While we see the United States leading in biomedical developments and many diverse technologies, we also see a populous India developing its software genius, and the boundless energetic manpower of China and the East transforming engineering and manufacturing enterprises. For WPI's graduates, the future will hold great opportunities for those with skills in science and technology, but also for those who have the energy and self-confidence to develop collateral abilities in areas such as international organization, management of natural resources, communications, finance, cultural adaptability, and entrepreneurial self-confidence.

We at WPI have gained an enviable position through the structure of our educational program. Our challenge now lies in developing the resources and collective self-confidence to again move ahead with a new vision for the future. ■

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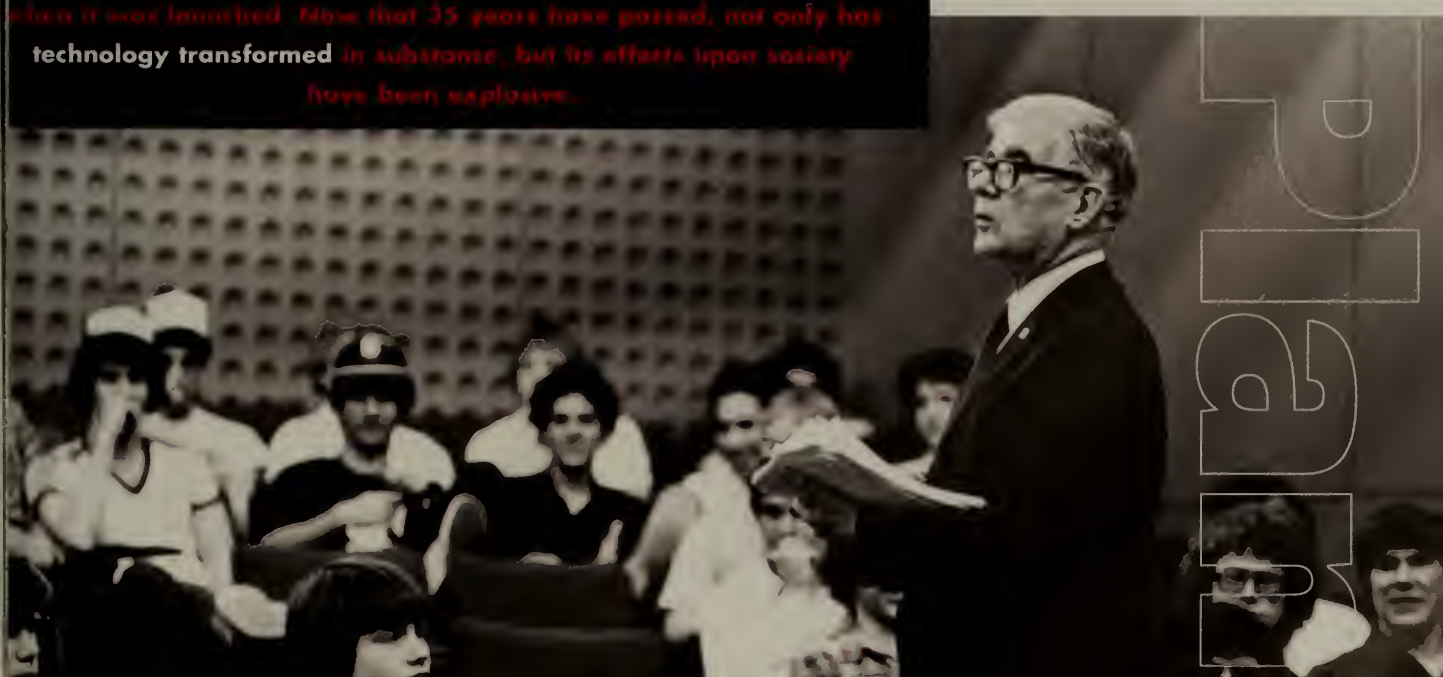
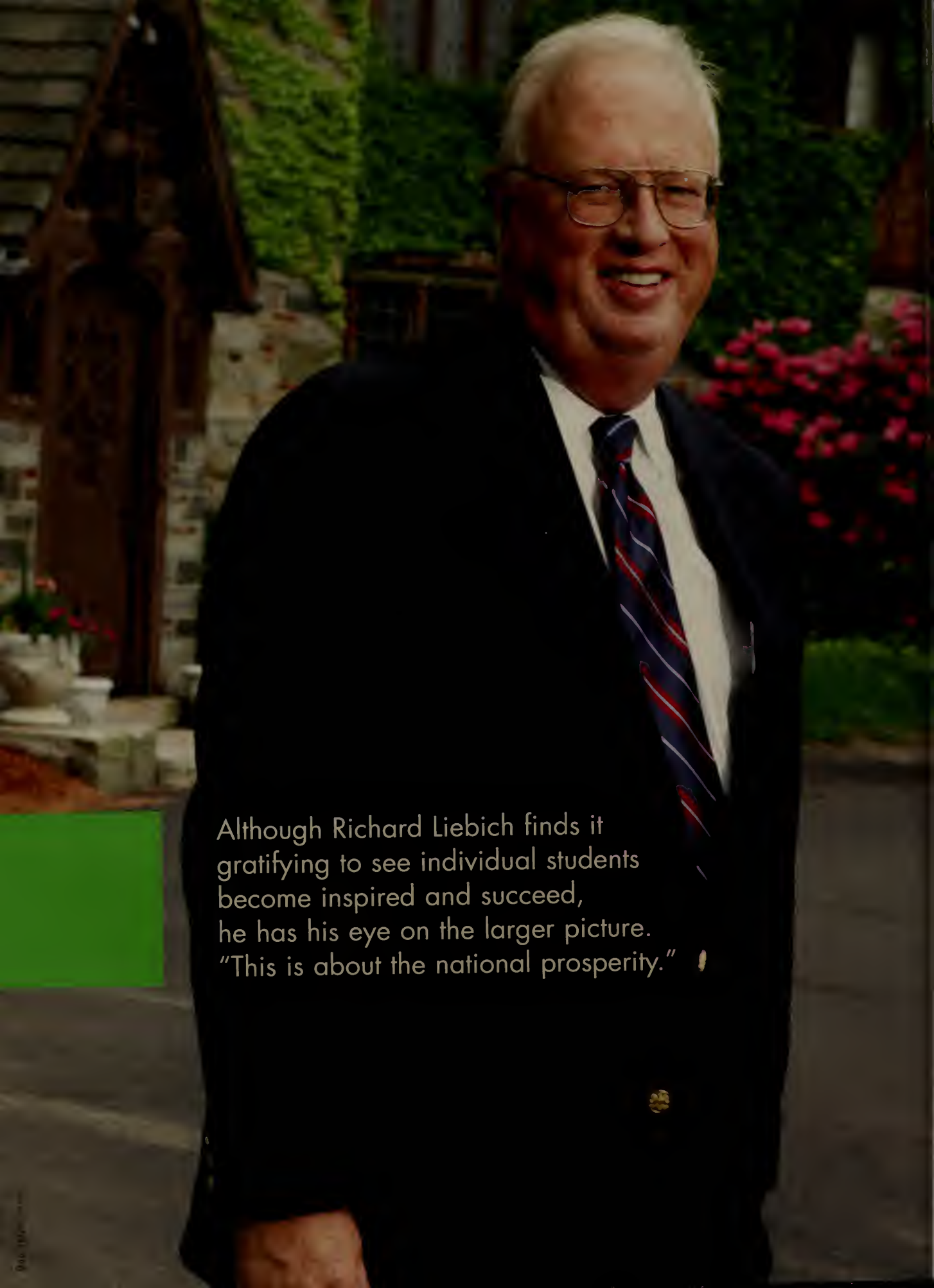




Although Richard Liebich finds it gratifying to see individual students become inspired and succeed, he has his eye on the larger picture. "This is about the national prosperity."

Leading the Way

By Joan Killough-Miller

Concerned that high school students weren't getting proper pre-engineering exposure, Richard Liebich '66 leveraged his philanthropic means to turn a local program into a premier national effort to educate future engineers.

Ask Richard Liebich how to get kids to love science and engineering. "Get them talking about what they hate," he says. "Start with an open-ended sentence, like 'I hate it when...' They're bound to come up with something that really bothers them."

For one teenager in snowy upstate New York, her pet gripe—an unreliable remote car starter—led her to invent a cell phone-activated starter that works beyond the range of traditional remotes, and even calls back to notify the owner that the car is running.

And that's where the learning begins, says Liebich, who heads Project Lead the Way (PLTW), a national pre-engineering program offered in 1,700 high schools in 46 states and the District of Columbia. A successful businessman and philanthropist with an MBA from Michigan State University, Liebich serves as CEO and chairman of the board for PLTW. He divides his workweek between his business, Transport National Development, an industrial cutting tool manufacturer in Orchard Park, N.Y., and his charitable concerns. He also serves as CEO of three other companies: North American Carbide, Cerbide Inc., and Advanced Material Technology Inc.

PLTW is a not-for-profit organization with roots in the Charitable Leadership Foundation (CLF), an innovative organization founded by Liebich's father. CLF promotes a performance-centered strategy of "high engagement philanthropy" to effect change in the areas of education, housing, and health care for people in need. As CEO of a related organization, the Charitable Venture Foundation, Liebich fosters responsible entrepreneurship to address social and educational issues.

Liebich's involvement with PLTW began in the mid 90s with his own son, Adam, now 26. In middle school, Adam was enchanted with engineering, but his school's approach—and its equipment—were hopelessly out of date. Liebich's wife, Beth, tells this story: "Adam came home from school one day saying, 'You aren't going to believe what we did today. It was so cool! We were doing engineering, and we had egg cartons, and string and a board...' And Richard exclaimed in dismay, 'You've got to be kidding!' He found out the school was still using early Apple computers from the 1970s, and sadly outdated software."

Liebich went into action, and leveraged CLF's resources to expand a promising high school technology program in use at 12 New York State schools into the national network it has become. (WPI is the program's Massachusetts affiliate; see story, next page.)

"You see a lot of kids who tune out the system, because they don't learn the way the system wants to teach them," he says. "When they get into PLTW, they blossom, because it's a new way of learning. Then, they're willing to go back and suffer though a traditional math class—because now they understand why they've got to learn it and how they will use it."

Although Liebich finds it gratifying to see individual students become inspired and succeed, he has his eye on the larger picture. "This is about the national prosperity," he says. "In my business, my customers are engineers, and they're all complaining about the engineering shortage. You put that together with the school piece, and you see we've got a real problem here. Our education system is in trouble. Manufacturing is in trouble. We, as a nation are in trouble."

continued on page 29

"I consider PLTW to be the premier, full-curriculum program for top-level high school students. It gives students the opportunity to experience real engineering, over multiple years."

—Martha Cyr

Priming the Pipeline

PLTW colls far o "dynamic partnership" between the K–12 schaals, industry, ond higher educotion. In 2005, WPI joined in that partnership as the PLTW affiliate far Massachusetts. WPI alsa serves PLTW's New England regian as part af a caalitian with the University af New Haven and New Hampshire Technical Institute. The start-up was funded by a generous danotian to WPI from Edno and Doug Noiles '44, who wonted to moke a difference in K–12 educatian.

Martha Cyr '87(MS), '97(PhD), directar af WPI's K–12 autreoch, serves os the state PLTW affiliate directar, assisted by PLTW program monager Banniejeon Boettcher. They pravide resaurces ta Massachusetts schaals affering PLTW pragroms, and are respansible far evoluoting schaals that seek PLTW certificatian.

Currently, aver 20 schaals in the state participate in PLTW, althaugh Cyr anticipates that number cauld triple ar even quadruple aver time. "Once schaals see haw their students respand ta PLTW, they are canverted," she says. "They like the way the kids get engoged in it. It's extremely rewording."

PLTW's strengths include the highly developed curriculum, which is extensively tested befare release, and the high standards expected af porticipating schaals. (Schaals must sign a cantract with a faur-year cammitment.) "I consider PLTW ta be the premier, full-curriculum pragram far tap-level high school students," Cyr says. "It gives students the oppartunity ta experience real engineering, aver multiple years."

The Office af K–12 Outreach works with mare thon 40 WPI pragrams, af which PLTW is just ane, affering o wide voriety af appartunities in the areas af technologicol literocy ond in science and mathematics learning and teaching. WPI is o fertile enviranment far PLTW pragrams, Cyr says, because the campus affers easy access ta specialized labaratories and relevant research. PLTW fits in with the autreach affice's missian af affering students the appartunity ta understand whot engineering is, while they're still in elementary and secandary schaol.

"This exposure lets students consider engineering as a career," Cyr soys. "They reolly need to get this expasure priar ta callege, becouse unlike most ather disciplines, engineering is a field where yau need ta have made a career decisian befare yau enter callege, in arder ta hit the graund running."

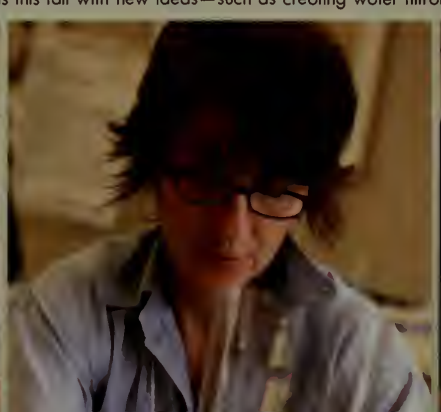
Indeed, graduotes af pre-engineering progroms such os PLTW hove a much higher retentian rote in college-level engineering progroms, often becouse students know whot they are getting inta, and they are better prepared far the rigars af the discipline.

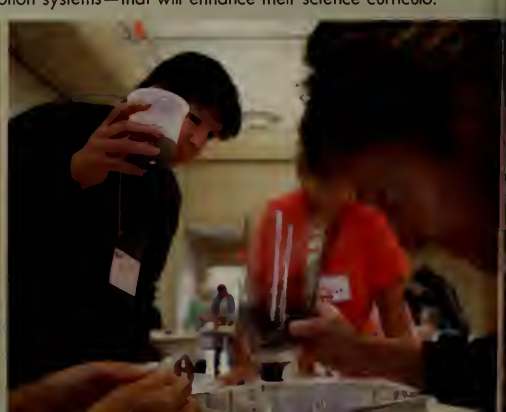
Intensive teacher training is a carnerstane af PLTW's success, and WPI plays an impartant rale by affering Summer Training Institute (STI) caurses far teochers and guidance caunselors. This "summer baat camp" runs five doys a week far abaut eight hours a day. It cavers o yeor's worth af curriculum in 10 doys. The classes ore co-tought by experienced K–12 teochers and higher educatian persannel. This summer, professars Hally Ault '74, '83 (MS), '88 (PhD) ond Leffi Mallay jained Cyr in canducting the sessians, which included Intraductian ta Engineering Design, Digitol Electranics, Civil Engineering and Architecture, and Aeraspace Engineering.

The university perspective is impartant, says Cyr, because it helps infarm teochers abaut what lies ahead far their engineering students in terms af pastsecandary educatian and the preparatian required for their chasen career tracks. At the same time, it gives high schaal teochers an appartunity ta became familiar with WPI. An STI porticipant told Cyr last summer, "Naw that I've been ta WPI ond seen the quality af its pragrams and the type af praject work that its students da, I'm going ta recammend thot all my PLTW students opply here."

—*JKM*

As port of WPI's autreach, regianal high schaal teochers spent two weeks taking classes and participating in ather troining octivities on compus this summer. These educotors returned to their respective schools this fall with new ideas—such as creoting woter filtrotion systems—that will enhance their science curriculo.





The teaching method is based on studies showing that the majority of people learn best through direct experience, rather than lecture or theoretical methods.

PLTW brings together industry, colleges and universities, and K–12 schools to provide high-caliber educational opportunities in the area of science, engineering, and technology. The curriculum, which is provided to schools on CD at no charge, is updated regularly. Teachers receive intensive training and ongoing support from the organization. The high school program involves four years of high-tech, hands-on courses that are modeled after university-level engineering courses, plus a capstone design project. Students complete their education with mathematics, science, and other courses from their schools' own curriculum. PLTW is self-funded, with revenues coming from software leases and some equipment purchases.

The PLTW teaching method is based on studies showing that the majority of people learn best through direct experience, rather than lecture or theoretical methods. For example, Liebich points out, few people could learn how to assemble a wristwatch, given only a parts list and a lengthy instruction manual. "But if I handed you the watch, all in pieces, and I helped you put it back together, you would retain much more," he says. "The mind sets up hooks that you can hang information on. If you have no hooks, the information just falls into a useless pile that the brain sweeps out on a regular basis. Your brain only retains things you have a use for."

PLTW recently launched a middle school program called Gateway to Technology, and elementary school offerings are in the works. The program got some popular exposure when a PLTW teacher and students in Florida appeared on the "Extreme Makeover" television show, designing a 21st century bedroom for a youngster, and presenting him with a $60,000 scholarship to the University of South Florida, where the boy would like to learn to design robotic eyes for his blind father.

In June, Liebich returned to WPI for Reunion 2006 to accept the Alumni Association's first-ever WPI Humanitarian Leadership Award (read his full award citation at www.wpi.edu/Admin/Alumni/News/Awards/HLA/). In his acceptance speech, he downplayed his own achievements, saying: "In truth, this award belongs to the many people who recognize that your schools need to be transformed, rather than reformed."

He speaks proudly of the strong enthusiasm that runs throughout the PLTW organization. "The support staff are some of our most enthusiastic supporters," he says. "They're out there, pumping away in their local schools. It's fun being out there, trying to change the world. You don't get very many opportunities to do that." ■

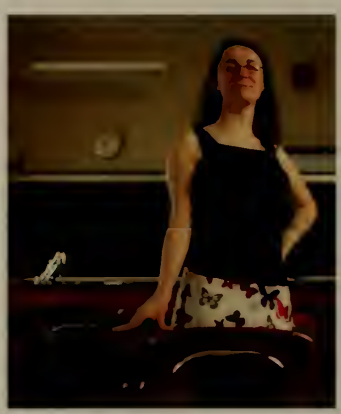
To find out about PLTW in your state, and learn how you and your employer can get involved, go to www.PLTW.org.

Andy Duback

Educated . . . *for Life*

By Joanne Silver

When they were students at WPI, both Domenico Grasso '77 and Emily Dodd '03 never imagined the career paths they eventually would follow. Grasso thought he would be working as an engineer—and, for a decade after receiving his master's degree, he served as an environmental engineer for the U.S. Army. Dodd had no doubt that she would be a bilingual emergency room doctor in a large city on the East Coast. Today, both are educators in love with their jobs, thrilled at the opportunity to combine science and humanity. Grasso is dean of the College of Engineering and Mathematical Sciences at the University of Vermont, where he is also a professor. Dodd teaches chemistry at the Manhattan Center for Science and Mathematics in East Harlem. Now 50 and 25, respectively, the two WPI graduates from two generations share not only a profession, but also a fresh outlook on the future of math and science education.



On a June morning, Domenico Grasso is busy in his Burlington, Vt., office. He has recently returned from Australia, where he was setting up a collaborative program with the University of Tasmania. Closer to home, he is preparing to address the graduating class of a local high school. He wants to speak about having an effect in the world—a sentiment that gains new life coming from a man who aims to overturn traditional notions of engineering's place in society.

It all comes down to thinking. For too long, Grasso believes, engineers have been encouraged to think in a certain way. In effect, they have been trained to be what he calls "the agents of work. They are the drones. Engineers have taken that up as a good thing."

He continues, "I couldn't live in this world of servitude. What I wanted was to make a difference in the world. I had to think outside the box."

Grasso certainly has excelled in the old-fashioned version of his field—obtaining degrees in civil engineering from WPI and Purdue University, and a PhD in environmental engineering from the University of Michigan. His research has focused on the ultimate fate of contaminants in the environment, and in developing techniques to reduce the risks they pose to human health and natural resources. He has received the honor of "Pioneer in Disinfection" from the Water Environment Federation and has been invited to join boards and research teams in America and abroad.

Still, he is fascinated by multiple perspectives in learning. At Smith College—where. until last year. he was the founding director of the first engineering program at a women's college in the United States—Grasso set out to strengthen the bridge between engineering and the human spirit. In an article describing this mission, he wrote, "After all, what is engineering?... A common misperception is that engineering is another one of the sciences. It is not. Engineering decisions rarely hinge entirely on science. Rather, engineers must also consider many other factors, such as economics, safety, accessibility, manufacturability, reliability, and sustainability.... Engineers must learn to manage and integrate a wide variety of information and knowledge to make sound decisions."

To help teach his more holistic approach, Grasso is thinking of making a subscription to *The Atlantic* magazine as mandatory as a laptop for students in the UVM program. Citing the writings of Harvard University biologist E. O. Wilson, he says, "One of the things we're basing the undergraduate curriculum on is the 'unity of knowledge.'" Grasso uses such terms as "full intellectual engagement" to describe the mind-set that will succeed in the years to come.

"We are facing a juggernaut of engineering graduates from overseas," he asserts. "The technical stuff can be outsourced. They can do as good a job. We could be the big thinkers, the problem definers."

Perhaps being the child of Italian immigrants gave Grasso the perspective to see things from an unusual vantage point. "I had to think outside the box because my parents couldn't speak English," he maintains. Grasso didn't speak the language until kindergarten, and at 16, he served as his mother's agent in his parents' divorce. Now that he is in a position to help shape young people, Grasso has instituted innovations—such as appointing a "director of student success"—to support those who have embarked on the rigors of an engineering curriculum. He wants courses in the 21st century to be learner-centered, hands-on, and related to one another.

Grasso, the father of four children ages 8 to 15, understands that changing the college offerings is only part of the solution. In addition to redefining the nature of engineering studies, he also hopes to attract a different pool of students. He recalls the case of a young woman at Smith—an aspiring fashion designer from California who had signed up for his course "Designing the Future," on the assumption that it would bolster her background. Grasso is proud to point out that the woman stayed in the course, became an engineering major, and went on to study policy at the graduate level.

In reflecting on his own education, he remembers the way in which engineers would denigrate the liberal arts as "too fluffy." At Michigan—a school Grasso describes as having a strong liberal arts tradition—he discovered that those in the liberal arts were just as intelligent as engineers. There, he also met his wife, who was a Latin scholar as well as an engineer. A talk by one of her Latin professors reinforced Grasso's evolving philosophy. Quoting classical texts, the Michigan professor described the diverse ways in which writings are interpreted, depending on the period and context.

"Every day and age is seeking some kind of truth," Grasso explains. "It is different in different times. Unfortunately, engineers don't ask those questions." If they did, he argues, they might not simply design a particular car; they would ask whether the car is the best way to get around. Or whether it is ethical for engineers to plan New Orleans' new levees to a standard they feel is inadequate.

"Engineers need to ask the right questions," he insists, "not just do what people tell them."

Domenico Grasso enjoys the quiet of UVM's Billings Student Center

Andy Duback

"A common misperception is that engineering is another one of the sciences. It is not. Engineering decisions rarely hinge entirely on science."

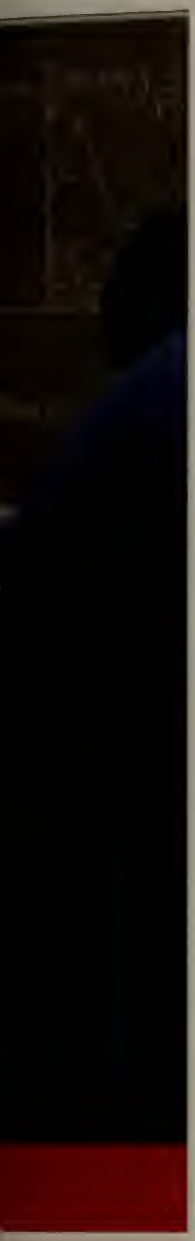
Patrick O'Connor

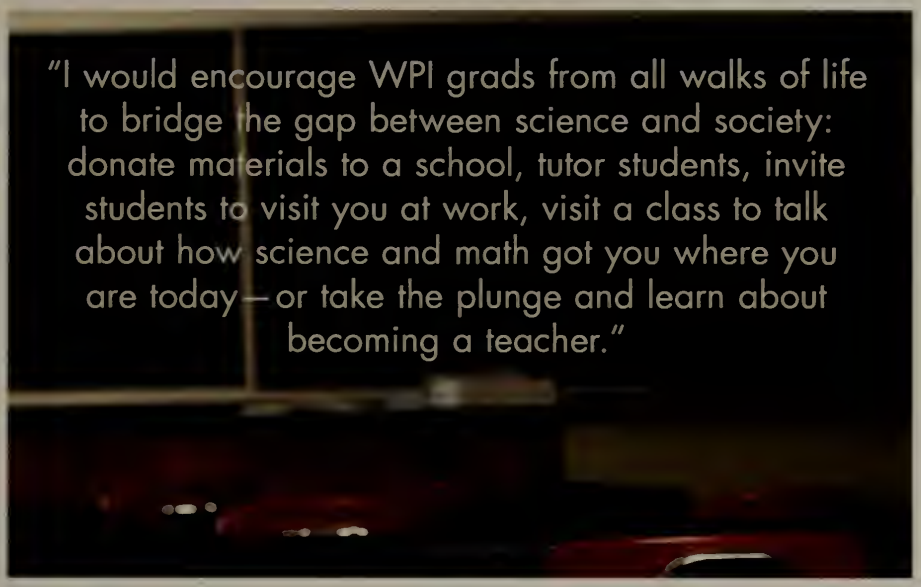
From one generation to the next: Emily Dodd inspires o love of science in her 10th-grode chemistry class.

Science was always part of Emily Dodd's life, even when she was too young to call it by that name. As the daughter of two WPI graduates (Charles Dodd '74 and Anne McPartland Dodd '75), she was surrounded by projects and activities—games with numbers, experiments growing radish seeds in different materials—that let her try something out and discover the results. In her hometown of Mont Vernon, N.H., she relished the quiet that came along with the rural setting because it allowed her to reflect and observe.

At a young age, she decided she would become an emergency room physician, to give practical use to her sense of wonder. But one night in a civil engineering lab, while working on her MQP on water treatment, a fateful online search led Dodd to stray from her plan. On Monster.com she saw a posting for a New York City teaching fellow—and she hasn't looked back. It's been three years since she graduated with high distinction as a biochemistry major and traded the New Hampshire countryside for the rhythms of Manhattan. "People ask me, 'New York City and teaching—what are you doing?'" Dodd says. "I tell them, 'Looking for an adventure.'"

"I was looking for something exciting, something I could really sink my teeth into," she explains. "Science was something I always enjoyed. I wanted to be able to pass that on to another generation."




"I would encourage WPI grads from all walks of life to bridge the gap between science and society: donate materials to a school, tutor students, invite students to visit you at work, visit a class to talk about how science and math got you where you are today—or take the plunge and learn about becoming a teacher."

That new generation is mostly 10th-graders at the Manhattan Center for Science and Mathematics. They travel from all over the five boroughs, sometimes riding subways and buses for an hour and a half to get to the building at 116th Street and the FDR Drive, overlooking the Harlem River. Many are immigrants from Mexico, Ecuador, the Dominican Republic, Guyana. All are expected to take a certain sequence of courses, to attend class, to graduate on time, to go to college. According to Dodd, over 80 percent do, in fact, enroll at a two- or four-year college or pursue a military career.

Before they reach Dodd's sophomore chemistry classes, her students have passed one year of biology, but, she says, "My basic M.O. is: If I haven't taught it to them, they don't know it." Because chemistry is conducted only in English, and some kids have come out of a bilingual biology program, Dodd has to address language as well as science in her classes. If she tutors them a handful at a time, "the students get more attention, and I get to feel I'm making more of a difference," she says. Often she will pair a weaker student with a stronger one who shares the language background, and both will benefit from the encounter.

Dodd is upbeat. In a conversation shortly before summer vacation, she says, "I have been writing recommendations for students to pursue summer programs in math and science. I would encourage many of them to pursue [careers in] math, science, and engineering. They have the skills."

She elaborates on her instructional strategies: "You have to make science fun, make scientists seem like normal people with real lives—people you might want to be."

"I try to tie lessons to the real world—this is why people put salt on an icy road or why they put salt in water for pasta." She recognizes that her students' home lives might be different from the one she knew and attempts whenever possible to find connections to their experiences.

Obstacles present themselves all too often—from a citywide transit strike to the shooting death of one student a few blocks from school. He had been having a hard time academically, but had been present in Dodd's double-period class that afternoon. "I said, 'Hey, glad you're here,'" she recalls. "I was not prepared for that. I wasn't done with him."

The next day she told her classes, "When you leave this building, you are a part of me. You may not think of me as a mother, but you are my children. I want to see you every day."

The rewards far outnumber the hardships for Dodd. This fall, one of her top students from her first year teaching will be going to WPI. But in order for such successes to be more common, she says, there must be changes in the system. "I am very focused on students of color," she says. "The educational system has been serving white students well. I'd like to see more emphasis on reaching out to non-majority populations, students of color, non-native English speakers."

She makes a plea to her fellow alumni: "I would encourage WPI grads from all walks of life to bridge the gap between science and society: donate materials to a school, tutor students, invite students to visit you at work, visit a class to talk about how science and math got you where you are today—or take the plunge and learn about becoming a teacher."

For Dodd, the decision to teach has been right all along: "I feel like I'm passing on what people have given to me: Science is fun. Science is the key to understanding the world around you." ■

AlumniConnections

This is a continuation of our dialogue with Morgan Rees '61, the 62nd President of the Alumni Association. We last spoke with Morgan earlier this year when he provided his goals for the year.

In the spring issue of *Transformations*, you detailed the key objectives for the Alumni Association: volunteerism, career services, and communications. Can you provide us with an update on these various initiatives?

Absolutely! The Association Cabinet has made progress in all these areas. Joe Ferrantino '67 heads the regional club effort. We now have two clubs in operation (Hartford/Springfield and New York City) and more starting this year (Southern New Hampshire, Boston, and Worcester). So far we've held pub nights, sporting events, and a Sunday brunch. But there are a number of other ways to become involved. For example, you can participate in class activities and GOLD (Graduates of the Last Decade) events, or become an Alumni Ambassador, representing WPI at a high school or college fair. If you are interested in volunteering, please contact the Office of Alumni Relations.

What progress has been made in the area of communications?

We completed a communications survey in the spring. The response was great—we heard from 280 alumni (a fourfold increase over our last survey, conducted in 2004). The results are now being compiled and analyzed. We'll report the results and actions we are taking in *The Bridge* and in *Transformations*. One of the surprising facts was that some alumni were not aware of *The Bridge*, the Association's monthly e-newsletter. This publication serves to keep alumni informed between issues of *Transformations*. It's easy to sign up and be informed—go to wpi.edu/+bridge. Our thanks go to many, but especially to Joyce Kline '87 for her efforts in spearheading the survey.

What can you report in the career services area?

We are expanding the scope of the program to encompass a broader range of services and assistance to alumni throughout their careers, including networking, mentoring, and job listings in *The Bridge*. This fall, we'll be adding a staff person who will focus on this area, as well as on enhancing volunteer activities. This will be a great addition to the Office of Alumni Relations. I'll report more on the specifics in *The Bridge* and in the next issue of *Transformations*. Our thanks go to Bill Krein '62 for all his good work in putting this program together.

Can you provide your perspectives on Reunion?

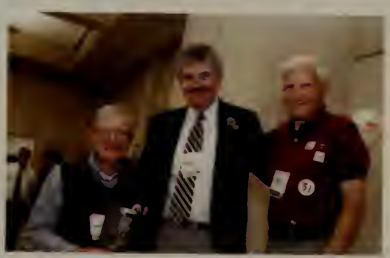
This was my first Reunion as president. In my judgment, it was a smashing success, thanks in large part to the volunteers from the Office of Alumni Relations and other WPI staff, and the Alumni Association. Reunion was a wonderful opportunity to connect with fellow alumni. The weekend was filled with exciting activities, as well as opportunities to renew old friendships, make new friends, and share memories. I really enjoyed the variety of offerings that Alumni College provided. The topics are fascinating. I hope more alumni will attend these events next year. Awards were presented to some very deserving people for career achievement and service to WPI. Professor emeritus Bill Grogan '46 and university vice president Steve Hebert '66 were recognized for their lifetime of service to WPI.

What's being planned for Homecoming?

The Class Boards of Directors will meet, as they do traditionally at that time, to discuss their class activities. Homecoming is a wonderful time to reconnect with former classmates, learn more about what WPI is doing from an academic standpoint, and enjoy a great football game. We're playing Union this year.

Reunion Weekend 2006

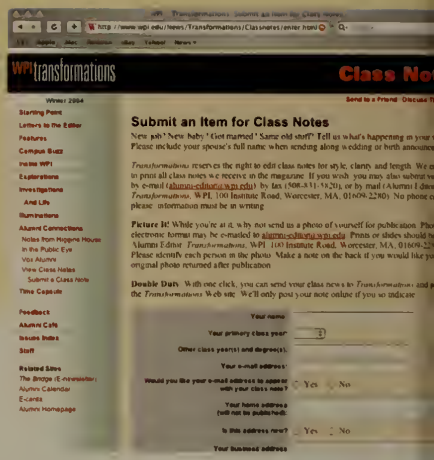
Even the rain couldn't dampen the mood during Reunion Weekend 2006, held June 9–11. Alumni from the classes of '41, '46, '51, '56, '61, '66, '71, '76, '81, and '86 celebrated their respective reunions with receptions and banquets, and by reuniting with old friends. Activities and events during the weekend included the annual Reunion Parade, campus tours, and Alumni College sessions led by WPI faculty and administrators. President Dennis Berkey accepted generous class gifts, and select alumni were celebrated with distinguished awards. *View more photos at alumni.wpi.edu.*



Class Notes

Staying Connected with Old Friends

Material for Class Notes comes from newspaper and magazine clippings, press releases, and information supplied by alumni. Due to production schedules, some notes may be out of date at publication, but may be updated in future issues. Please allow up to 6 months for your news to appear in print. Submit your Class Note at www.wpi.edu/+Transformations or alumni-editor@wpi.edu. You may fax it to 508-831-5820, or mail it to Alumni Editor, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280.

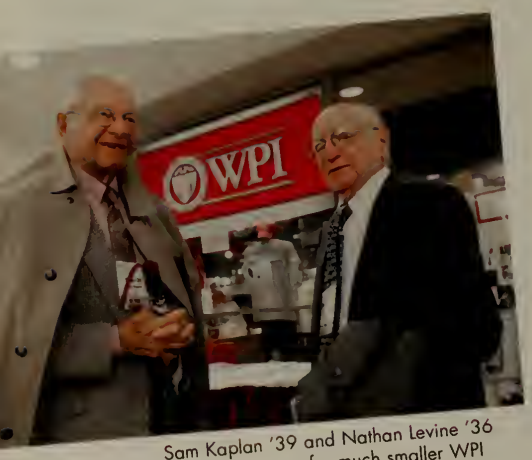


1930s

Jack Brand '36 contributed some reflections on life at Tech in the 30s, when jackets and ties were "de rigueur" in the classroom, tuition was a mere $330, and an entry-level engineer was grateful for a job offer of $120 a month upon graduation. Jack reminisced about the colorful professors such as "Coombsie," "Black Mac" McCullough, and Charles Allen, who gave explosive laboratory demonstrations on gasoline safety. He concludes, "Worcester Tech had been the right school for me. It prepared me well for a fulfilling 42-year career at Du Pont. In the 1930s, Worcester Polytechnic Institute was a leading small engineering college; 70 years later, WPI is a world-class university."

Do you have WPI memories to share?

E-mail them to the Student Alumni Society at **wheniwas@wpi.edu**, or send them to SAS, WPI, 100 Institute Road, Worcester, MA 01609–2280.



Sam Kaplan '39 and Nathan Levine '36 share memories of a much smaller WPI campus, at Reunion 2006

Peter Koliss '38 of Nashua, N.H., is retired after 43 years with Bell Laboratories. He has devoted himself to raising funds to establish Catholic churches in Ghana. A longtime member of the Knights of Columbus, he brought the state councils on board in the quest to raise $100,000 toward five churches in five years. The first church, St. Francis, in the village of Nyinampong, will be dedicated to the memory of his wife, Evelyn, who died in 2004.

1940s

Noting the lack of Class Notes from "older" classes in the last issue of *Transformations*, **Ed Campbell '43** urges all classmates to provide input. "Let's do our part by posting WPI on interesting or informative items about ourselves and others," he writes. "I'll start. We have recently moved from our cherished home in New London, N.H., to a great retirement (I really should say "older age") lodging in Falmouth, Maine. It's taken a little effort to adjust our lifestyle, but I think I'll make it."

No news isn't good news ...when it comes to our alumni

Transformations would like to expand Class Notes coverage of the earlier classes, but we can't do it without you! Send a note and a photo, and let your classmates know what's cooking in your part of the world.

1950s

Bill Taylor '55 has a new work, *Lethal American Confusion: How Bush and the Pacifists Failed in the War on Terrorism,* which is available in electronic format at AmericanConfusion.com. A print version is in the works. Taylor also invites readers to visit the Web site and take part in a consciousness-raising survey on the similarities between pacifists and advocates. After the survey closes on January 1, 2007, respondents will discuss the findings and explore further steps.

Paul Beswick '57's PRD2 pressure regulator won *Product Design & Development* magazine's Engineering Silver Award for the best new product of 2005. It was also a runner-up in *Design News* magazine's 2006 Golden Mousetrap Awards in the Fluid Power category. The compact, lightweight design offers high performance for applications where size and weight are critical. Beswick founded the company in Massachusetts in 1964, relocated to Greenland, N.H., in 1996, and opened a Singapore branch in 2000.

Dick Wright '57 was inducted into the Chelmsford (Mass.) High School Hall of Fame this year. He and his wife, Katherine, recently celebrated their 25th anniversary. They have three children and six grandchildren. Dick's first wife, Barbara, passed away in 1979. He is retired from a career with Raytheon, where he designed missile guidance systems.

Bill Rabinovitch '58 reported on the opening of Apple Computer's "Glass Cube" uptown store in NYC, which brought him and his video camera up close to Steve Jobs and Ron Johnson. Bill writes, "The event didn't seem primarily about Geekdom, as tens of thousands, families and all, waited

for hours, surrounding the area for blocks. I felt there were going to be massive cultural implications in all of this, and I think that I was right!"

1960s

Richard Brewster '60, and his wife, Susan (right), celebrated the opening of a new well in the village of Gordee, Liberia, constructed by the Mercy Ships program and funded through donations raised by his Rotary Club. After the ribbon-cutting ceremony, and the presentation of a pineapple as a thank you gift, the feasting and dancing began. Brewster, a longtime Mercy Ships volunteer, writes that with access to basic sanitation and clean water, an estimated 80 percent of human illness could be eliminated.

"Would you believe?" writes **Thomas Heefener '61**. "Both **Christopher Coote '97** and I serve on the Borough Council of Mercersburg (pop. 1,500), located in south central Pennsylvania."

In the wake of public utilities deregulation, **Richard Vogel '61** has been working on proprietary technology to provide alternatives to conventional power generation. In the 1980s he designed and built a 10-kilowatt steam turbine micro power plant. In 1996 he received a patent for a new system that uses a heat flow process based on the design of the main engine of the Space Shuttle, in consultation with NASA. "Things have certainly been 'transformed' since my freshman year at WPI, when on Oct. 4, 1957, Russia's *Sputnik* was announced on the bulletin board," he writes. "Perhaps BSEE could mean 'Bachelor of Science-Ecological Enhancement,' or some similar wordsmith creation. It feels a bit like graduating once again."

Michael Moses '62 received the 2006 Investment Management Council Journalism Award, along with his co-author on an article in the *Journal of Investment Consulting*. The article, "Beautiful Asset: Art as Investment," was published in Vol. 7, No. 2, of the journal. Moses is a tenured associate professor of management at New York University's Stern School of Business. His research interests include art as an asset class and the pricing of infrequently traded assets.

Chester "Gerry" Sergey '65 lives in Wolcott, Conn. His days as a drummer for a popular local high school band called The Tempests were recalled in the "Bristol Bits" column of the local newspaper.

Phillip Clark '67's firm, Clark Patterson Associates, made the Rochester (N.Y.) Top 100 list. He founded the company as Clark Engineers is 1975, and it now has 200 employees and eight office locations in four states, with plans to add two more offices in the next two years.

Thomas Marmen '68 was appointed president and CEO of TimeLab Corp., an Andover, Mass.-based firm that develops and supplies timing circuits.

1970s

Ron Dlugosz '70 was elected selectman in Great Barrington, Mass.

Ralph Sbrogna '70 was named a director at Fletcher, Tilton & Whipple PC of Boston. He is a graduate of Suffolk Law School.

Maryann (Bagdis) Goebel '73 was named CIO of DHL Express for the Americas, Asia-Pacific region, and emerging markets/Latin America. She will oversee IT initiatives in those areas and chair the company's IT board.

James Edwards '74 married Kathryn Nolt, April 2, 2006. They live in Lancaster, Pa.

Michael Hartnett '74 (MSEE) was honored as a distinguished alumnus of the University of New Haven, where he earned his bachelor's and doctoral degrees. He is chairman, president, and CEO of RBC Bearings, which operates 16 plants in three countries and employs more than 1,700 people.

In the Public Eye

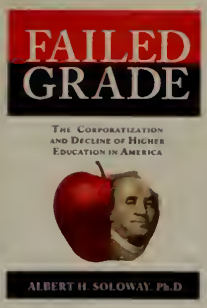
Flashback, the latest novel by **Gary Goshgarian '64** (pen name Gary Braver) won an Honors Award from the **Massachusetts Center for the Book** and was the Number 1 medical thriller in the **Doubleday Book Club.** The **Boston Globe** called *Flashback* "a thoughtful book with an intriguing premise and a sprawling plot, pulled together with a twist at the end" ... **Richard Salwitz '67** (aka "Magic Dick") was counted "among the world's most successful blues harmonica players" by **recordnet.com.** The former J. Geils Band member performed in Modesto, Calif., at Mark Hummel's Blues Harmonica Blowout in July ... **Dave Emery '70** placed third in the Republican primary for **governor of Maine.** In a letter to supporters, he wrote, "I'm disappointed that I won't be the one taking our ideas for improving state government before the voters in November. I've also been in politics long enough to appreciate the will of the voters [...] and I respect their choice. I will work for [Republican nominee] Chandler Woodcock and I ask you to do so, as well." ... **Dean Kamen '73** was a commencement speaker at **BU** and **RIT** this spring... **Mark Ketchum '75** was interviewed for a **PBS American Experience** program on San Francisco's Golden Gate Bridge. His firm, OPAC Consulting Engineers, led the seismic evaluations and retrofit strategy development for both the Golden Gate and the Bay Bridge suspension spans ... With gas prices soaring this spring, **Jeff Leonard '84** was widely quoted in his capacity as chief spokesperson for the National Association of Convenience Stores. Hundreds of print, broadcast, and online outlets, including **CNN** and **Fox News,** carried his comments on pricing formulas and consumer response ... Two alums, **Chirag Patel '99,** and **Gina Colangelo '03,** were featured in a cover story on analog devices in the June issue of **Test & Measurement World** ... the Worcester **Telegram & Gazette** covered the graduation of **Daniel Gilbreath '06** in May, noting that all of his siblings were WPI graduates—**Larissa '00,** twins **Emily** and **Amelia '01,** and **Tanya '04** (MS '05).

Bookshelf

Recent and new publications by WPI alumni, faculty, staff

Failed Grade: The Corporatization and Decline of Higher Education in America

by Albert H. Soloway '48 *American University & Colleges Press*



Soloway, a former faculty member and dean at Northeastern University and The Ohio State University, draws on his 33 years in academia, as well as the insights of his colleagues, to explore problems facing today's colleges and universities. With institutions forced to focus on the bottom line, and administrative priorities trained on fund-raising and generating revenue, what happens to a college's primary mission—the education of the next generation and the quest for new knowledge? Soloway looks at the effects of grade inflation and skyrocketing tuition, as well as the marginalization of faculty in decision making and the selection of college presidents for their fund-raising ability rather than their educational vision. "This book is written for all who care deeply about higher education," he writes in the preface. "I hope [it] will raise questions for those creating policy for higher education as well as provide suggested solutions for alleviating some existing problems."

The First Betrayal

by Patricia Bray '84 *Bantam Spectra*

The First Betrayal is the first installment of Bray's new series, "The Chronicles of Josan." The protagonist, an orphan, exile, and priest, lives a humble life as a lighthouse keeper—until a chance encounter with Lady Ysobel Flordelis of Alcina sets off a deadly chain of events. Josan is forced to leave his island exile and embark on a dangerous journey to unlock the secrets of his past. Bray, who received the 2003 Compton Crook award for Devlin's Luck, the first book in her previous "Sword of Change" series, lives in upstate New York, where balances her writing with a full-time career as an IT project manager. She is now hard at work at on the second book in the "Josan" series, called *The Sea Change*. For excerpts and a book signing schedule, see her Web site, www.patriciabray.com.

Applied Control Theory for Embedded Systems

by Tim Wescott '88 ('90 MS) *Elsevier*

Wescott addresses the needs of embedded systems engineers and programmers who are called on to implement control systems as part of a product design, yet do not have formal training or experience in control system theory. His practical guide offers real-world examples and practical information that can be used to design working systems. *Applied Control Theory* offers sufficient mathematical background without requiring a thorough mastery of the complicated theoretical considerations that operate behind the scenes. Chapters include "Z Transforms," "Performance," "Block Diagrams," "Analysis and Design," "Sampling," "State-Space Control," and "Software Implications." Wescott, who owns and operates Wescott Design Services, has many years of experience in the application of control system theory to embedded designs and consults on embedded control and signal processing issues.

Norton Bonaparte '75 has been appointed the first city manager of Topeka, Kan. Under the city's new form of governance, Bonaparte will serve as CEO, reporting to the mayor and city council for day-to-day operations of 1,400 employees and a $174-million budget. He previously served as a city administrator in New Jersey and Maryland.

John Holmes '75 and his wife, Lynn, are both coaches for the Rams at Southwick-Tolland Regional High School in southwestern Massachusetts. He is the school's varsity baseball coach, and she coaches the varsity softball team. The couple has been coaching recreational teams for decades, while their three children were growing up, and now they even help out their 3-year-old grandson.

Kevin Kelly '75 finally earned his WPI degree in May, by doing his MQP—all that stood between him and the diploma—on radar software and systems development. He did not attend commencement exercises, but his story was picked up by local newspapers in the Stamford, Conn., area. Kevin is now a senior software engineer with Northrop Grumman Norden Systems in Norwalk.

Greg Cipriano '76 is vice president, marketing and military development, at Protonex Technology Corp., based in Southborough, Mass.

Thomas McNeice '76 was promoted to senior vice president at CDM in Cambridge, Mass., where he leads the design-build and general contracting business operations for the northeastern United States.

Steve Rourke '76 was appointed vice president of system planning at ISO New England, based in Holyoke, Mass.

Neal Wright '76 was promoted to vice president of the newly formed Base Realignment and Closure Program Management Office at Michael Baker Jr. Inc., in Virginia Beach, Va. He retired from the U.S. Army as lieutenant colonel in 1998, and has worked for Baker since 2000.

The Society of Fire Protection Engineers elected **Jeff Harrington '77** a fellow of the society. A dedicated member since 1976, when he helped found the student SFPE chapter at WPI, Jeff later joined the Southeastern Chapter and served in every officer position, culminating in two years as president. He is founder of Harrington Group in Duluth, Ga.

Eric Hertz '77 was elected to the board of directors of NTELOS Holdings Corp. in Waynsboro, Va. He was previously COO of Western Wireless Corp.

David Lesneski '77 joined R. W. Beck Inc. in Boston as a senior consultant in the firm's Energy Assets Consulting Practice. He has published several technical papers on boiler systems and holds a patent for steam generator design.

Andreas von Huene '78 was part of a team of artists that sculpted a full-scale "evocation" of the six-masted schooner *Wyoming,* which was unveiled in June at the Maine Maritime Museum in Bath. The *Wyoming,* once billed as the largest sailing vessel in the world, lives on the largest outdoor sculpture in the state of Maine.

Andrew J. Davidson '79 was promoted to vice president/chief financial officer of Richard White Sons Inc. He joined the Auburndale, Mass., construction management firm in 1997 as controller.

Mary Dunn '79 is engineering director at Seagate Technology in Longmont, Colo., where she has worked for 12 years. She recently spoke at a career forum organized by the Women's Vision Foundation of Colorado.

1980

Martin Rowe, senior technical editor of *Test & Measurement World,* recorded a song for engineers who struggle with slow equipment, out-of-calibration gear, and software crashes. Hear "The Measurement Blues" online, and connect with other lab-based musicians at tmworld.com/blues.

1981

The fourth annual **Craig Abraham** Memorial Golf Tournament was held May 20, 2006. It was organized by classmate **George Awiszus.** Proceeds go to a college fund for Craig's three children and to a scholarship in his honor, which has been presented annually to an Ashland (Mass.) High School senior by Craig's widow, Louise. Information and photos of the event are posted at www.craigabraham.com.

Dennis Moulton was promoted to vice president at Ames MSC, Architects & Engineers, in Portsmouth, N.H. He was previously senior engineer.

1982

Frank Hines launched Hines & Lee Inc. (www.hinesandlee.com), a consultancy that provides services in the areas of market research, strategy, and innovation. He started the business to gain greater independence, after spending the past 10 years working for a management consulting boutique in the new product development arena. His wife and business partner, Jeanne Lee Hines, will act as managing partner.

Andy Schell holds the post of affluent segment marketing executive for Bank of America Global Wealth & Investment Management in Boston. He previously worked for Ameriprise Financial as vice president of marketing planning.

1983

Joe Morgan serves as general manager of the On Demand Solutions Group at Standard Register in Dayton, Ohio, where he has been employed since 2001.

Peter Woods represented WPI at the inauguration of St. Martin University's new president, Douglas Astolfi, held March 27, 2006, in Lacey, Wash.

Navy Cmdr. **Marshall Young** was promoted to staff executive officer of the commander submarine force stationed at Norfolk, Va. He has been in the Navy since 1983 and had served as deputy commander of Recruiting Region South since 2004.

See you in court? A recent legal proceeding before the Vermont Transportation Board brought together **Joe Segale '86** (expert witness on traffic engineering issues), **Stuart Hurd '70** (representing the Town of Bennington as its manager), and **Jon Anderson '75** (attorney for the developer). Also working on the hearing was the Transportation Board's administrative officer, Glenn Gershaneck, whose son is a member of the WPI Class of 2006.

Send us a picture and tell us where you've shown your WPI letters lately.

1984

Jean (Salek) Camp, owner of Camp Consulting LCC, received her Hawaii state contractor's license this year. She now operates two companies, one for project engineering, construction, and business management; the other for contracting services. She and her husband, David, continue to enjoy living on Kauai and participating in several youth-directed organizations.

John McNamara and his wife, Tricia, live in West Newbury, Mass., where they are co-coaches for the Pentucket Middle School basketball program.

Brian Witkowski works for Essilor International as the global engineering tooling manager. "I am responsible for design for our optical lens injection molds and also support Essilor's five production sites in the U.S., France, Thailand, and China. I have been with the company for nine nears, after some time in the Army and a variety of other jobs. This year will mark my 18th wedding anniversary to my wife, Kim. We live in northeast Connecticut with our children, Rebecca, 13, and Matthew, 11."

Representatives from Pratt & Whitney (including a large number of alumni) joined with WPI administrators to celebrate the company's long-standing ties to WPI and to present a $23,500 donation. The campus visit was organized by **Mike Gonsor '86** (not pictured), **Ryan Walsh '99,** and **Mary Schubert '05.**

1985

Thomas Arsenault was named president of the newly established sensor systems business in the Electronics & Integrated Solutions Operating Group at BAE Systems in Nashua, N.H.

Chris Cavigioli writes, "Carrie and I had a son, Daniel. He's cute and has recently learned how to make bubbles with his saliva and his lips."

Mair Sitton writes from Panama City, Panama, "I joined Mays Free Zone Colon to develop a huge motorcycle business in partnership with a firm from China, operating under their name brand, Max Motor, with tremendous success in over 15 countries in Central and South America, as well as the Caribbean." He lives with his wife, Eileen, and their four boys.

1987

Paul Lubas moved to Glastonbury, Conn., to begin a new position as senior marketing manager–Pharmaceutical for CUNO Inc., a 3M company. He is charged with creating programs to increase the sales of CUNO filtration products within the pharmaceutical market. He lives with his wife, Paula, and son, Christopher, who turned two in March.

Donald Zereski launched Yokel Inc., which operates the Yokel.com shopping search engine. He and his partner designed the site to help shoppers track down items at local stores.

1988

Brent Goldstein co-founded Goldstein-Milano LCC, a structural engineering consulting firm in Reading, Mass., in 2005. He was formerly a principal with McNamara/Salvia Inc. in Boston. The new firm is currently active in the U.S. commercial and institutional building markets. His past projects include Two International Place and Providence Place Mall.

Mark Osborne works as a program leader in pharmacovigilance informatics at Millennium Pharmaceuticals. He writes, "I enjoy spending time with my family, which includes my wife of 16 years, Carolyn, and children: Alex, 12, Katelyn, 10, and Tyler, 5."

Michael Thurston joined the Army in 2003 and was promoted to lieutenant colonel in 2005. Now on deployment in Iraq, he and his wife and children are based at Ft. Monmouth, N.J.

women's elite field (F14), but had a late withdrawal because of an injury. A highlight of Marathon Day was riding the elite bus, he writes. "There I was, riding to the start of the most historic and prestigious marathon in the world in my throw-away sweats, with some of the best runners in the world all decked out in high-end gear from their sponsors, with a state police escort blocking traffic for us the whole way. It felt like I was living someone else's life for the day. I was happy with my finishing time of 3:53:28 which bettered my pre-race goal of 4 hours."

Brian Hamilton was promoted to project executive at Consigli Construction Co. in Milford, Mass., where he has worked since 2001. His past projects include Milford Regional Medical Center, MetroWest Medical Center, and Marlboro Hospital.

Travel to Greece

Alumni and members of the WPI community are invited to join the Men's Glee Club on a concert tour of Greece, March 2–10 2007. The tour features sightseeing in Athens and Delphi, plus a five-day cruise of the islands. Touring with the chorus and attending performances offers a unique perspective on a foreign country, and a rewarding connection to WPI students.

Registration deadline is December 2. Trip details and registration forms are available at **wpi.edu/Admin/Alumni/Services/travel.html.** For more information, contact John Delorey at 508-831-5051 or jfd@wpi.edu.

The WPI Men's Glee Club is the oldest student-run organization on campus, and one of the oldest men's glee clubs in America (133 years).

1989

Daniel Bruso and his wife, Sandra, are pleased to announce the birth of Audrey Ellen and Charles Daniel on April 6, 2006. They join their older sister, Claire Elizabeth, at the family's Somers, Conn., home. Everyone is doing well.

Brendan Connelly ran the Boston Marathon this year. His wife, Canadian Olympian Tina Connelly, was in the

1990

Paul Dombrowski received the Alfred E. Peloquin Award from the New England Water Environment Association for his work in wastewater engineering. He is a senior project manager with Tighe & Bond.

Christopher Hegarty (MS '92) received the 2005 Hobart Newell Award at an ECE department ceremony on May 1, 2006. He was honored for his work in GPS systems for civil aviation, which are currently used by the FAA. Hegarty is director for spectrum management within The MITRE Corp.'s Center for Advanced Aviation System Development.

Christina (Coumou) and **Mark Macaulay '89** are proud to announce the birth of their daughter, Caroline Rose, on Sept. 6, 2005. They live in Northborough, Mass., with their two sons, Patrick, 7, and Bennett, 4.

1991

Mike Messer recently graduated from the Air Force Institute of Technology with a master's degree in operations analysis. He was extended invitations to join Tau Beta Pi and Omega Rho, the honor society of the Institute of Operations Research and Management Sciences. Mike will spend the next year in southwest Asia, while his wife and three children return home to Wichita Falls, Texas, where he will join them upon return.

Yael Schwartz (PhD) left Sepracor Inc. to co-found Orcas Therapeutics Inc., where she is now president and CEO. "The Orca is an opportunistic feeder," she says of the company's plan to optimize and improve the effectiveness and safety of drugs currently on the market. She expects Orcas to double in size in the next six months, as operations move out of her Holden, Mass., home and into office space in Westborough.

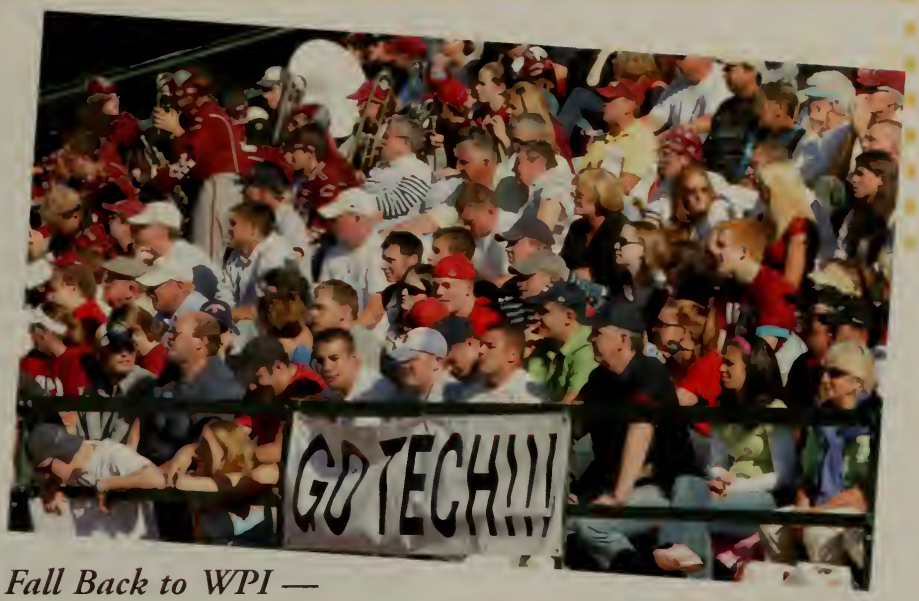
Rick Willett is president and COO of NewPage Corp. in Dayton, Ohio.

1992

Concetta DePaolo was promoted to associate professor and awarded tenure by the College of Business of Indiana State University. She and her husband, David Rader, live in Terre Haute, with their daughter, Megan.

1993

After completing his PhD, **Matt Boutell** enjoyed his return to teaching as an assistant professor of computer science and software engineering at Rose-Hulman Institute of Technology. Matt, his wife, Leah, and their four children live in Terre Haute, Ind.



Fall Back to WPI —

Homecoming: October 6–7, 2006

— wpi.edu/+alumni

Peter Cavallo recently completed his PhD in mechanical engineering at Drexel University. His work in adaptive refinement methods for computational fluid dynamics was presented at the past three Aerospace Sciences meetings, and has appeared in *AIAA Journal* and the *Journal of Aerospace Computing, Information, and Communication.* He continues as senior scientist for Combustion Research and Flow Technology (CRAFT) of Pipersville, Pa., a small DoD/NASA contractor.

Tracy Coifman and his wife, Agnes Rios, are happy to announce the birth of their daughter, Andrea Paola, on May 1, 2006. Her twin brothers, Diego and Myles—now big brothers—are approaching 2½ years. "We recently sold our house, bought a new home for our growing family, and moved, all in the same week that our daughter was born," Tracy writes.

Al Grasso was officially appointed president and CEO of The MITRE Corp., following the retirement of the previous president. His promotion was approved by the board last September.

Jeff Rembold and his wife, Cristine, announce the birth of their fifth child, Margaret Anne, on March 12, 2006. Jeff still lives in Webster, N.Y., where he works as a senior applications engineer for PTC. You can read his (occasional) technical blogs at ptc.com/community/prointralink8/start.

1994

Michelle (Shear) and **Chris Pacitto '98** announce the birth of their daughter, Akela Sydney, on Feb. 25, 2006.

Matt Pope moved to Seattle with his employer, Grove Networks, when the company was acquired by Microsoft. He is now group manager for Grove products at Microsoft. Matt and his wife, Heather, have two children.

1995

Lisa (Caponi) de Mars and her husband, Robert, announce the birth of their second son, Ryan John, on May 6, 2006.

1996

Suzan Bullock married Alan Michaud, Nov. 5, 2005. She works for R.W. Gillespie and Associates as administrative assistant of finance. Following a wedding trip to Ossipee, N.H., they live in Buxton, Maine.

Sarah Kazmi and her husband, Suheil Laher, have one child, Fatimah, born Dec. 9, 2004.

Sue (MacPherson) Kristoff was a guest speaker at a recent Mathletes Recognition Night held at her alma mater, Hudson (Mass.) High School. She lives in Leominster, where she operates her own engineering consulting firm.

Pam (Kelly) Sluter is training to run the Maine Marathon on Oct. 1, 2006, as part of the Leukemia and Lymphoma Society's Team in Training program. "I am committed to raising $1,850 for the society, 75 percent of which will be used directly toward research. Anyone interested in making a donation can reach me at pjslu@lycos.com."

Kenny Volock earned a master's degree from the University of Maine in 1999 and passed his PE exam in 2005. He works for Woodard & Curran in Portland, Maine.

Alumni who work at Microsoft reconnected with their alma mater this summer, when Mike Gennert, Computer Science Department head, and **Terry Schmidt Adams '92,** director of corporate relations, visited Microsoft's Redmond, Wash., headquarters. Adams spoke to the group about major developments at WPI over the last decade as well as those on the horizon. Gennert briefed attendees on the history and future direction of the department. They also discussed WPI's extensive K–12 outreach and diversity retention programs, and the university's evolving robotics engineering degree program with Microsoft executives.

Will Lees '85 organized the event; also participating were **Mark Ramberg '82, Peter Woods '84 MS'98, Rob Mauceri '87, Howie Dickerman '93 MS'94, Jonathan Tanner '98 MS'99, Ben Leclerc '01, Brad Snow '01, Kati Dimitrova MS'03, Rimma Nehme MS'05,** and current CS graduate students **Yuan Gao** and **Shoushen Yang.**

1997

Brian Lakin and his wife, Michelle, announce the birth of their second child, Jacob Ethan, on Feb. 5, 2006. He joins his big sister Shayna in their home in Hamden, Conn.

Scott McDermott married Jessica Hassett on April 6, 2006. They live in Imperial, Calif.

Jami Walsh passed the PE exam and is now a registered professional engineer in the state of Massachusetts.

1998

Capt. **Chad Braley** joined Phaedrus Technologies. He lives in South Portland, Maine.

Penelope (Taska) Butler joined the Air Force Reserves' 7th Space Operations Squadron as a GPS operator. She left active duty in December to pursue a full-time interior design program at the Art Institute of Colorado. She and her husband, Chris, live in Colorado Springs.

Michael and **Stacy (Gold) Gagne** are pleased to announce the birth of their daughter, Catherine Elizabeth. Cate was born Feb. 23, 2006. The family lives in Gainsville, Va., where both parents work as project engineers at Aerojet Corp. They write that Stacy has gone back to work "to ensure that proper funds will be available in 19 years for Cate to attend WPI and carry on the Gagne tradition."

Brendan Smith will join the MBA class of 2008 at Harvard Business School, with full-time classes starting this fall.

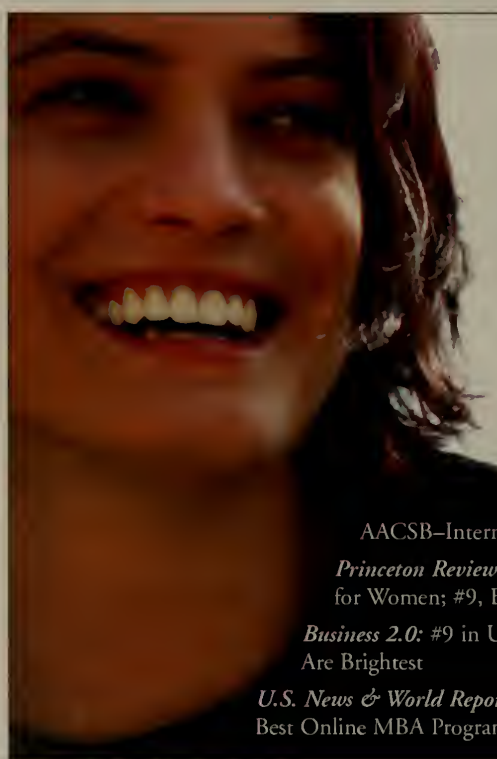
1999

Ted Goodwin is a senior software engineer for EMC Corp. He lives in Sturbridge with his wife, Lindsay, and daughter, Rita.

Melissa (Clark) and **Matthew Johnson '98** are thrilled to announce the birth of their first child, Rachael Elizabeth, on March 8, 2006. They live in southern Rhode Island.

John Rush and **Kate Burgess '00** opened Evolo Home Center, selling high-end luxury modular homes in Newport, Maine. They did not know each other at WPI, but met while working for Pratt & Whitney in Connecticut. Kate's father joined them in the new business, which opened in March.

Lisa (Angle) and **Garren Walters '98** had their second son, Evan William, in March 2006. Evan joins big brother Justin, 2, in their Nashua, N.H. home.



Which university offers the only MBA east of the Rockies that ranked in the Top 10 in both Career Prospects and Opportunities for Women? Yours.

We know that when choosing an MBA program, nothing matters more than the doors it opens for you. The MBA at WPI launches more rewarding careers and provides greater opportunities to move into desirable career paths that will inspire and challenge you for a lifetime.

Know where you want to go? Choose the MBA that will get you there.

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Princeton Review: #2 in U.S., Greatest Opportunities for Women; #9, Best Career Prospects

Business 2.0: #9 in U.S., Where Your Career Prospects Are Brightest

U.S. News & World Report: Top 55 National Universities; Best Online MBA Programs

WPI

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www.mgt.wpi.edu

Gambling on Gompei? At the Bellagio Casino in Las Vegas with one very lucky goat are, from left, **Richard Scopelliti '99, Stephanie McGrath '00, Nicole (Roy) Niccoli '00, Matthew Vidal '99, Vladislav Zilberman '99,** and **Eric Niccoli '00.**

Send us a picture and tell us where you've shown your WPI spirit lately.

2001

Fernando Ayala holds the post of global public sector consultant for Grant Thornton in Washington, D.C.

Jessica Hoepf and **John Costa '02** were married April 22, 2006. Many WPI alumni were in attendance at their wedding in New Hampshire, which helped make the day special. The couple traveled to the South Pacific for their honeymoon and spent 12 days in Tahiti, Bora Bora, Le Taha'a, and Moorea.

Congratulations to **Jennifer Headman,** who married Jeremy Van Vleet on March 11, 2006. They took time off from their PhD studies at the University of Wisconsin-Madison for a honeymoon trip to London and Paris. This spring Jennifer learned that she had been selected as a Fulbright Fellow to spend the 2006-07 academic year conducting energy research at the Technical University of Denmark in Lyngby.

Danielle (Barber) Kotmel and her husband, Josh, proudly welcomed their second daughter, Niveah Mae, to the family on May 7, 2006. Niveah joins her fabulous big sister, Lilya Jane, born in 2004.

Fang Li (MS FPE) works in the Shanghai office of the RJA Group.

It has been a busy year for the Mullers, write **Paul** and **Amanda (Kight) Muller.** Paul, who was promoted to the rank of captain, graduated from the Air Force Institute of Technology in June with an MS degree in physics. In the same week, Amanda completed the requirements for her PhD in human factors engineering at Wright State University. The newly dubbed Captain and Doctor Muller now reside in Melbourne, Fla., where Paul works for the Air Force Technical Application Center at Patrick Air Force Base, and Amanda serves as a systems engineer for Northrop Grumman.

Todd Staples and Sherry Theriault are pleased to announce the birth of their second child, Savannah Jean, born April 19, 2006. She joins big brother Isaac in their home in Grafton, Mass. "We could not be happier," writes Todd. "She is perfect."

2002

Dan Tromp and **Katherine Labbe '05** were married on Aug. 6, 2005. The wedding was attended by numerous WPI alumni, including **Stephen Worsham** as best man and **Alexis Steinhart '05** as a bridesmaid. Dan and Katie have a home in Worcester. Katie will be attending Massachusetts College of Pharmacy in the fall; Dan is a software developer for ING.

2003

American Dryer Corp. recently named **David Campbell** technical regional sales manager for the northeastern United States and Canada.

On March 17, 2006, Lt. j.g. **Ryan Clarke** was designated a naval aviator and received his Wings of Gold. His next assignment is with Strike Fighter Squadron One Two Two (VFA-122), learning to fly the Boeing F/A-18E/F Super Hornet, the Navy's newest front-line strike-fighter jet.

Brett Ericson is pursing his master's degree in biotechnology at WPI as the university's first ECI Biotech fellow.

Ronja LaBrecque and **Anthony Yergeau '06** got engaged on May 20, 2006. They are planning a September 2007 wedding in southern New Hampshire.

Married for over two years now, 1st Lt. **Scott Martin** (USMC) and his wife, the former Lindsey Corcoran, enjoyed a formal wedding ceremony in August 2005. Scott completed his MBA degree at Boston University and is currently deployed to Djibouti, Africa, in support of Operation Enduring Freedom. The Martins reside at Marine Corps Air Station Cherry Point, N.C.

Natalie (Woodworth) and **Dan Reed** were married in 2005, in a small mountaintop ceremony at Acadia National Park in Maine, with classmates **Caitlin Harvey, Jillian O'Toole Urban,** and **Ryan Wartman** in the wedding party. Natalie and Dan welcomed the birth of their first child, Julia Madeline Reed, on March 2, 2006. They live in Bangor, Maine.

Jennifer Schelly completed her MS in electrical engineering at Tufts University on May 22, 2006. She works for BAE Systems in Nashua, N.H.

2004

Rebecca Croteau and **Tyson Moore** were married on July 9, 2006, in Newport, R.I. The couple currently resides in Franklin, Mass.

Matt Musiak ('06 MSEE) was appointed to the position of product engineer at ITT Power Solutions, based in West Springfield, Mass., where he interned as an undergraduate.

Spotlight on Alumni Volunteers

Jake Roczniak '03, one of the youngest members of the Alumni Cabinet, heads the group's operations division. Technically, he oversees class boards of directors meetings—which occur annually during the morning of Homecoming—as well as the Alumni Leadership Council and various other committees.

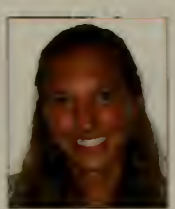
But more important, Roczniak points out, is his unofficial job of increasing volunteerism among alumni. Through his work with the Alumni Cabinet and through the Greek Alumni Council, which he helped reestablish last year, Roczniak is on a mission.

"It can be hard to get alumni reconnected with WPI, which is unfortunate," he concedes. "One of our biggest challenges is bringing volunteers back. So, to start, we're compiling a list of all the ways that alumni can volunteer."

Roczniak, now a consultant with Milford, Mass.–based Project Technologies Group, majored in management information systems at WPI. Originally from Lewisburg, W.Va., he filled his undergraduate days with a number of clubs and activities, including is fraternity, Lambda Chi Alpha. "When I graduated, I immediately tried to restart the Greek Alumni Council," Roczniak explains. "The Greek community is one of the most active on campus. I knew alumni would want to continue volunteering."

Last summer, he happily accepted an invitation from Alumni Association president Morgan Rees '61 to chair the cabinet's operations division. "I got so much out of WPI," Roczniak says. "I don't feel like I have to volunteer, but I really want to. WPI is where I want to volunteer my time."

To learn more about alumni volunteer opportunities, or to get involved, contact the Office of Alumni Relations at 508-831-5600 or alumni-office@wpi.edu.



Maggie Tomaswick ('06 MS) joined the Product Engineering Dept. at Beswick Engineering Co., where she is responsible for development and evolution of products and improvements in manufacturing, testing, assembly, fabrication, and quality assurance.

Daniel Wallance writes with a follow-up on his IQP with **Joe Havelick** and **Antti Koski '02** on Efficient E-Waste Management in Costa Rica, done for Intel. Their findings were used by a Costa Rican NGO, in cooperation with a Netherlands NGO, to drive a countrywide project, and a pilot E-waste recycling day was held in November 2005. Daniel is currently working in New York City for a hedge fund devoted to value investing, and runs his own eCommerce jewelry Web site, fashionends.com.

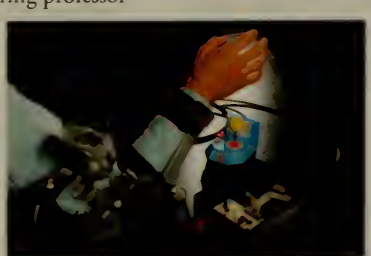
2005

Marghrit Arous married Berj Bardizbanian in June 2005. She is a civil engineer with the Mass Highway Dept.

Marta Katarzyna Krajewska married Louis George Asack III on June 3, 2006. They had a two-week honeymoon in Mexico and currently reside in southern Massachusetts. Marta has been working for GE since January 2005 as a design engineer.

Roya Mirhosseini is part of GE's Edison Engineering Development Program.

Steven Toddes and **Michael Scarsella,** along with mechanical engineering professor **Allen Hoffman '63,** have received WPI's first Kalenian Award for entrepreneurship. The award recognizes a motorized brace they developed, enabling those suffering from muscular dystrophy to perform simple tasks with their hands, and thus, gain a greater sense of independence. Hoffman, professor and co-founder of WPI's Assistive Technology Resource Center, Scarsella, and Toddes were awarded $25,000 in seed funding to help further develop and commercialize the technology.



The Kalenian Award was established this year by Alba Kalenian in memory of her late husband, inventor **Aram Kalenian '33.** Its purpose is to encourage innovation and entrepreneurship among WPI students, faculty, and alumni.

School of Industrial Management

Wallace West '83 writes, "After retiring from Norton Co. in 1987, I operated Cleveland Place, a bookshop, bed & breakfast, and craft shop in Alma, New Brunswick, Canada, until 2003, when daughter Jane became owner. Now, my wife, Anna, and I run Wallyanna Farm in rural Hammondvale, New Brunswick. We are caregivers for geese, Arabian horses, and chickens."

Survey Drawing Winners

Congratulations to **William Riccio '88,** who won an iPod in the random drawing of respondents to the Alumni Communications Survey. Second place winner was **John Cunic '68;** third place, **Anthony Cosenze '04.** Thanks to all who participated. The survey results will be reported in a future issue of *Transformations* and in *The Bridge,* WPI's alumni e-newsletter. Sign up to receive *The Bridge* and stay connected to WPI.

wpi.edu/+bridge

Obituaries

"Grandpa Ed" dies at 98

Edward D. Amsden '31 (Phi Gamma Delta) died April 6, 2006. His wife, Margaret, died in 1995; he leaves three sons. He was the longtime owner of the J.W. Ladd Manufacturing Co., but Ansden is best remembered for his volunteer work in the towns of Hill and Concord, N.H. Here are excerpts from an appreciation by Melanie Asmar, reprinted with permission from the Concord Monitor.

Ed Amsden, known to hundreds of Concord schoolchildren as "Grandpa Ed," was buried Sunday with a tiny reading lamp in his pocket. It was the kind he had shined on countless pages as he quietly listened to second-graders sound out three-syllable words in elementary school hallways, following along through the thick glasses he'd worn since he was a boy.

Born in 1908, he loved to tell stories about the "olden days." On his 95th birthday, he regaled the kids at Rumford School with tales of horse-drawn plows, once-a-week baths, and traveling circuses.

After the death of his wife, Amsden began volunteering. "This soft-spoken elderly gentleman came in and said he wanted us to find him something to do every day," said Nancy Spater, director of the Retired and Senior Volunteer program. "He was 88 years old. We never thought 10 years later, he'd be going strong."

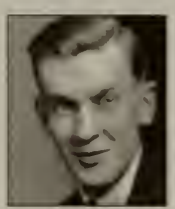
In all, Amsden volunteered at more than 40 nonprofit organizations. He had a special place in his heart for schoolchildren, his son Hank said, especially those who struggled. In Amsden's honor, Rumford and Walker schools have established a "Grandpa Ed Reading Award" to be given to the child who makes the most reading progress each year.

Linval D. Harvey '33 of Fall River, Mass., died Feb. 15, 2006. He leaves his wife, Doris (Clarner), and a daughter. Harvey was retired from Allendale Insurance Co. as senior vice president.

Transformations recently learned of the death of **Chester B. Cotton '34** in 2003. A former stockbroker for Bear, Stearns Co. in New York City, he retired and moved to Palm Beach, Fla.

Albert B. Glenn '34 of Millbury, Mass., died May 14, 2006. A U.S. Army veteran stationed in Hawaii at the time of the Japanese attack on Pearl Harbor, he was a loyal member of the Pearl Harbor Survivors Association and was one of the oldest living survivors of the attack. Glenn was retired from the Commonwealth of Massachusetts as a conservation and natural resources officer. Predeceased by two brothers, he leaves his caregivers.

Jacob Smith '34 (Alpha Epsilon Pi) of Worcester died March 1, 2006. He leaves his wife, Jennie (Slarskey), and two children. He was a longtime plant manager for Worcester Knitting Co.



Francis L. Harrington '35 (Theta Chi) of Queensbury, N.Y., died April 8, 2006. He leaves his wife, Trudy (Brown), and three sons. He joined Cottrell Paper Co. after graduation and retired as treasurer and general manager.

Charles S. Smith '35 (Phi Sigma Kappa, Skull) of Fort Lauderdale, Fla., died May 1, 2006. He leaves his wife, Ruth (Boettcher), and three children. Smith was the retired president of Chas. S. Smith Marine Consultants.

Alumni who wish to make contributions in memory of classmates and friends may contact the Office of Development and Alumni Relations at 508-831-5660 or acolgan@wpi.edu.

Eric W. Soderberg '35 (Phi Sigma Kappa) of Milford, Conn., died Feb. 6, 2006, leaving his wife, Jessie (Sullivan), and a daughter. He was predeceased by a son and a daughter. Soderberg was the owner of Newburg Molded Products.

Edward W. Armstrong '36 (Theta Chi) of Fitchburg, Mass., died May 2, 2006. His wife, Muriel (McBride) died in 2005. Two children survive them. Armstrong served as a mathematics instructor at WPI in the 1940s. He retired from Simonds Saw & Steel Co. in 1981 as manager of manufacturing after 30 years of service.

Robert E. Maynard Sr. '36 (SIM '53) of Grafton, Mass., died March 24, 2006. He was the husband of Kathleen (Horgan), the father of Robert E. Maynard Jr. '63 and another son, and the grandfather of Robert E. Maynard III '87. Another son predeceased him. Maynard was retired from the Vacuum Division of Varian as purchasing manager.

Trustee Emeritus **Caleb D. "Bud" Hammond '37** (Phi Gamma Delta, Skull) of Maplewood, N.J., died May 29, 2006. He was the retired president of C. S. Hammond & Co., the mapmaking company founded by his grandfather in 1900, which he helped bring into the digital age. Hammond received the Robert H. Goddard Alumni Award for Outstanding Professional Achievement in 1992. He served as a trustee from 1978 to 1988. He is survived by his wife, Patricia, a son, and two daughters.

Werner P. Held '38 of Lynnwood, Wash., died Nov. 17, 2004. He is survived by his wife, Doris (Sorensen), and two children; a daughter predeceased him. A longtime high school teacher, he retired from Hellgate High School in Missoula, Mont., in 1979.

Joseph W. Staniunas '38 (Sigma Alpha Epsilon) of Lloyd Harbor, N.Y., died March 25, 2006. Predeceased by his wife, Naomi, he leaves two children. He was retired from Pratt & Whitney, where he worked on Wasp aircraft and jet engines.

Transformations recently learned of the death of **John A. Backes '39** (formerly Baskis) on Feb. 6, 2004. A retired field officer for Textron Inc., he and his wife, Bernice (Kamendulis), lived in Mesa, Ariz.

Charles W. Cummings '39 (Theta Chi) of Cathedral City, Calif., died May 1, 2004. He leaves his wife, Shirley, and two children. He was retired from Pacific Telephone & Telegraph as a transmission manager.

Apostle T. Dervos '39 of Surf City, N.J., died March 14, 2004. Predeceased by his wife, Kathryn, he leaves three children. Dervos was retired from Bendix Corp. as a manufacturing manager.

H. Roger Erickson '40 of Holden, Mass., died Feb. 21, 2005. A retired human resources specialist, he served as personnel manager for U.S. Envelope Co. and later Worcester County Institution for Savings. He leaves his wife, Anna, and a son.

Transformations recently learned of the death of **Warren C. Hotchkiss '40** (Phi Gamma Delta, Skull) of Conyers, Ga., in 1994. He was sales engineer and manager for several Connecticut companies. He and his wife, Gretel, had two sons.

Robert E. Dean '41 of Framingham, Mass., died Aug. 14, 2005, leaving his wife, Mildred (Weisman), and three children. He was the president of Dean Machinery.

James E. McGinnis '41 (Phi Kappa Theta) of Sun City, Fla., died Jan. 19, 2006. He is survived by his wife, Ruth (Farady), and six children. He worked for New England Telephone in Boston, and AT&T in New York.

Anthony J. Yakutis '43 of Lexington, Mass., died March 2, 2006. He was retired from MIT's Lincoln Laboratory. Survivors include his wife, Barbara (Sturtevant), and four children.

John W. Hagstrom '44 (Phi Sigma Kappa) of Centerville, Mass., died March 10, 2006. Predeceased by his first wife, Elaine, in 1991, he married the former Jane Kimball in 1992, giving him a second family. In addition to his wife, he is survived by two daughters. Hagstrom was retired from General Motors Co. as a plant supervisor.

Allan R. Mandelin '44 of San Diego, Calif., died Feb. 16, 2006. He earned a master's degree in mathematics at Southern Methodist University and worked with early data processing computers at Chance Vought Aircraft in the 1950s. He later joined IBM and worked on NASA projects, developing programs for Shuttle and Space Station missions. His wife, Dorothy, survives him.

Edwin G. Baldwin '45 (Alpha Tau Omega) of Burlington, N.C., died Feb. 3, 2006. He leaves his wife, Betsy (Shumway), and two children. He earned a master's degree in electrical engineering at WPI in 1948 and joined Bell Telephone Laboratories. He retired from AT&T in 1984 as director of patent and technologies licensing.

Edmund F. Jurga '46 (Phi Kappa Theta) of Syosset, N.Y., died March 25, 2006. His wife, Mary (Ryan) died in 1994. A daughter survives him. Jurga was a retired industrial engineer for General Electric Co.

John C. Waddell '46 of Traverse City, Mich., died June 25, 2005. He was the retired president of J.C. Waddell Sales Corp. Survivors include his wife, Jean, and three children.

Thomas M. Zajac '46 (Alpha Tau Omega) of West Hartford, Conn., died May 12, 2006. He leaves his wife, Eleanor (Emerson), and two children. Zajac was retired from Hamilton Standard Division of United Aircraft (now United Technologies) as chief of materials engineering and structural integrity. He continued as a consultant in the aerospace industry.

Daniel G. Lewis Jr. '47 (Sigma Phi Epsilon, Skull) of Bethesda, Md., died Jan. 28, 2006. He leaves his wife, Barbara, and nine children. He was retired as director of technical services for American Public Power Associates.

V. Lawrence Petersen '47 (Alpha Tau Omega) died June 11, 2004, at his home in Morro Bay, Calif. His wife, Barbara, and four children survive him. Petersen worked for Goodyear Tire & Rubber Co. for 38 years, retiring as vice president of material management.

Richard F. Smith '49 of Baldwinville, Mass., died June 15, 2004. Survivors include his wife, Roberta, and two children. A former consulting engineer, he also worked for New England Nuclear.

Louis G. DelSignore '51 (Phi Kappa Theta) of Dover, N.H., died April 19, 2006, leaving his wife, Jeanne, and eight children. An engineer for the U.S. Army, he worked at Pease Air Force Base and Westover Air Force Base.

Alan S. Foss '52 (Sigma Alpha Epsilon), professor emeritus of chemical engineering at the University of California, Berkeley, died Feb. 22, 2006. He received his master's degree and doctorate from the University of Delaware. He also served as a senior staff scientist at Lawrence Berkeley National Laboratory. Survivors include his wife, Anna Mathe, and four children.

Robert F. Niro '54 of (Phi Kappa Theta) Medway, Mass., died April 12, 2006. He is survived by his wife, Jacqueline (Abretti), and two children. He was retired from Digital Equipment Corp. with 25 years of service.

David P. Nygard '54 (Sigma Alpha Epsilon) died Feb. 23, 2006, at his home in Bourne, Mass. A longtime computer specialist for Pratt & Whitney Aircraft, Morgan Construction Co., and Price Waterhouse, he continued as a self-employed consultant after retirement. His wife, Nancy (Ohrn), and three children survive him.

Edward L. Gallini '57 (Phi Kappa Theta) of Marion, Mass., died April 30, 2006. He leaves his wife, Mary (Denechaud), and three children. He earned an MBA from Western New England College and was retired from Johnson & Johnson as a design engineer.

Arthur R. Larocque '57 (Phi Gamma Delta) of Houston died March 24, 2006. He was retired from a career in the oil industry that included Shell Oil Co., Gulf Oil Co., NuCoastal, and Coastal Refining & Marketing, where he served as vice president. He is survived by his wife, Wallis, and three children.

Joseph F. Coveney '59 (MSChE) (Theta Chi) of Sarasota, Fla., died May 6, 2006. He leaves his wife, Ginny (Kimball), and five children. He was retired from Praxair.

Lawrence W. Cochrane Jr. '60 of Port Charlotte, Fla., died May 7, 2006. A retired school teacher for Pentucket Regional Junior High, he held a master's degree in education from Salem State College. He also studied at the New England Conservatory of Music and the Eastman School of Music. Survivors include his wife, Marilyn, and two children.

John D. Driscoll '60 (Phi Sigma Kappa) of Newark, Del., died March 27, 2006. He leaves his wife, Lorraine, and three children. Driscoll was a nuclear engineer who worked for PSE&G and United Engineers.

Richard H. York '62 (Tau Kappa Epsilon) of Moraga, Calif., died Dec. 15, 2005. He leaves his wife, Linda, and two children. York earned a master's degree in geotechnical engineering at the University of California and worked for Harlan Tait Associates for 28 years.

James V. Silvestri II '63 (Sigma Alpha Epsilon) of Easton, Conn., died March 11, 2006, 16 years after surviving a heart transplant. He was a longtime high school teacher and baseball coach. Survivors include his wife, Margaret (Pitt), and three children.

Scott Sargent '65 (SIM) of Kennebunk, Maine, died Jan. 13, 2006, at age 73. He leaves his wife, Helen, and three children. He was retired from Morgan Construction Co. as a director and vice president of finance.

Byron L. "Barney" Dennison '67 (PhD) of Westford, Mass., and Blacksburg, Va., died March 13, 2006. A former chair of the Electrical Engineering Department at the University of Massachusetts Lowell, he also taught at Virginia Tech, Southeastern Massachusetts University (now University of Massachusetts Dartmouth), and Merrimack College. He is survived by two children, his former wife, Betty Davis, and his close friend Barbara Thurston.

Paul O. Granquist '67 (SIM) died April 12, 2006, at his home in Holden, Mass. He leaves his wife, Anna (Losapio) and two children. Granquist was the retired CEO and owner of the Thomas Smith Co. He received the 1991 Albert J. Schwieger Award for Professional Achievement from WPI's School of Industrial Management.

Former police chief, Faculty Wives Club president mourned

Alfred T. Whitney, 83, longtime head of Campus Police, died May 12, 2006. Whitney began his career with the Massachusetts State Police, where he become a narcotics investigations expert. After 23 yeors of service, he retired with the rank of lieutenant, and joined the WPI police force in 1969. He retired in January 1990. ❖ "Chief Whitney was instrumentol in professianalizing the WPI Police Department," says Directar of Public Sofety and Chief of Police Cheryl Martunos. "He was innavative and pragressive and braught the WPI Police to the forefrant as one of the finest campus police agencies in centrol Massachusetts." Under his direction, the former security guard/watchperson regime was transformed into an ocademy-trained, professianally equipped, unifarmed police farce. He alsa aversaw the develapment af a standard operating procedure monuol and the installatian af an intrusion olorm system. ❖ A langtime resident af Maynord, Moss., Whitney later maved ta Osterville. He is survived by his wife, Beverly, three sons, and seven grandchildren.

Gwen (Lundin) Hall, 76, wife of Robert J. Hall, farmer directar of cantinuing educotion ond professor emeritus of monagement ond mechonical engineering, died June 8, 2006. She was well knawn to the WPI cammunity os president of the Faculty Wives Club. She was alsa an active volunteer in her hometown, Poxton, Mass. Besides her husband of 56 years, she is survived by faur children and nine grondchildren.

Rene B. LaPierre '67 (Phi Sigma Kappa) of Guilford, Conn., died April 30, 2006. He leaves his wife, Patricia, and two children. He was retired from Mobil Research Corp., where he spent most of his career as a research and development manager and senior technologist. He later served as vice president of research and engineering at Precision Combustion. LaPierre held numerous patents and published widely in the field of petrochemical manufacture.

James R. Crabb '68 (Lambda Chi Alpha) of Stratford, Conn., died April 19, 2006. He was a town yard supervisor in the Office of Operations for the town of Stamford. He leaves his wife, Marie (Thomes), and a son.

Michael D. McCormick '70 (Phi Gamma Delta) of Lincoln, Mass., died March 16, 2006. He leaves his wife, Colleen, and two daughters. He was a sales and marketing executive in the semiconductor industry.

Robert P. Apkarian '75 of Chamblee, Ga., was killed in an accident, Feb. 28, 2006. An internationally recognized microscopist, he founded and directed the Integrated Microscopy and Microanalytical Facility at Emory University, where he pioneered new technologies in the field. For his work on behalf of scientists in the Republic of Armenia, Apkarian was appointed an honorary member of the National Academy of Scientists. He is survived by his wife, Juliette.

Wayne E. Stratton '75 (Sigma Pi) of Gaithersburg, Md., died Feb. 10, 2006. He was an electrical engineer with the U.S. Consumer Products Safety Commission Laboratory.

Brian P. Plummer '76 of Rio Rancho, N.M., died unexpectedly March 15, 2005. He leaves his wife, Evelyn, and four children. He worked in quality control at Intel Corp. for 26 years.

Thomas A. Brillhart '85 (SIM) of Whitinsville, Mass., died April 9, 2006. He leaves his wife, Jean, and two children. He worked at Kidde-Fenwal Inc. for 25 years

Transformations recently learned of the death of **Erdan Jin '90** (MSEE) of Middleton, Mass., in 2001.

Benjamin Alesbrook '03 of Worcester, Mass., died March 17, 2006, following a car accident in Hingham. Survivors include his wife, Heather (Metterville), his parents, grandparents, and a brother. Alesbrook was a mechanical design engineer at Integrated Process Technologies.

Roger J. Schafer III '05 (Alpha Phi Omega) drowned July 29, 2006, while swimming with friends in the Ammonoosuc River in Crawford's Purchase, N.H. He recently completed the requirements for a BS degree in computer science and was a software engineer for FM Global in Providence, R.I. He is survived by his parents, two sisters, and two brothers.

Michael A. Plumer '06 died March 18, 2006, from injuries sustained in a motor vehicle accident in Kensington, N.H., prior to completing his senior year at WPI. He leaves his parents and a sister. A chemical engineering major, he pursued a passionate interest in environmental protection through his WPI projects. An article based on his MQP research on coal-fired power plants will be published later this year.

Correction: The obituary of **John R. Taylor '50** in the Spring 2006 issue omitted one of his children. Taylor leaves two sons, Greg and Paul, and two daughters, Nancy and Lisa. Our apologies to them, and to his widow, Marion.

Time Capsule

An Early View

A select few may remember WPI as it appears here, circa 1933, in the oldest aerial photograph that exists of the campus. In the background are, from left, Boynton Hall and Washburn shops (representing *lehr und kunst,* theory and practice), Stratton Hall, the Foundry (now the Project Center), Salisbury Labs, and Atwater Kent Labs. Beyond them, in the distance, are Salisbury Pond and Washburn & Moen Co., established by WPI founder Ichabod Washburn. Notable is the large amount of open space on the east side of campus. Within a decade, the grass and tennis courts along West Street would be replaced by Alden Memorial, Beech Tree Circle, and Higgins Labs, and Earle Bridge would link the east and west campuses. Look closely for the cars near the tennis courts, a foreshadowing of the parking lot that would grow to circle the Quadrangle. The cars sit on the approximate location of WPI's newest building, Bartlett Center, which opened in May.

Graduate Studies in Science & Engineering

Discover. Innovate. Advance.

WPI

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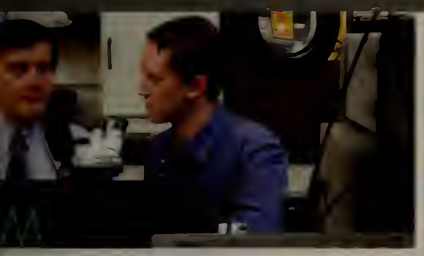
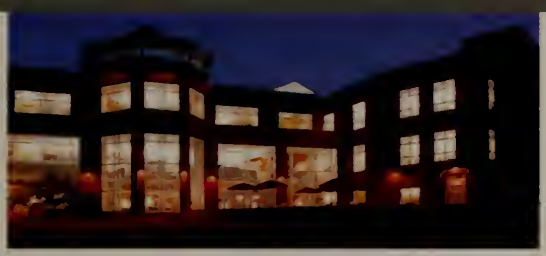

WPI's Science and Engineering Graduate Programs feature world-class faculty and facilities. WPI's graduate students and faculty work closely together in a number of cutting-edge research areas, leading to breakthroughs and innovations in such fields as biotechnology, fuel cells, nanotechnology, and information security. Opportunities for fellowships, teaching, and research assistantships for full-time students are available.

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- Mechanical Engineering
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- Social Science & Policy Studies

The following programs are available online:
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Information Session

Thursday, September 28, 6 p.m. • WPI Campus Center

Register to attend at www.grad.wpi.edu or call 508-831-5301

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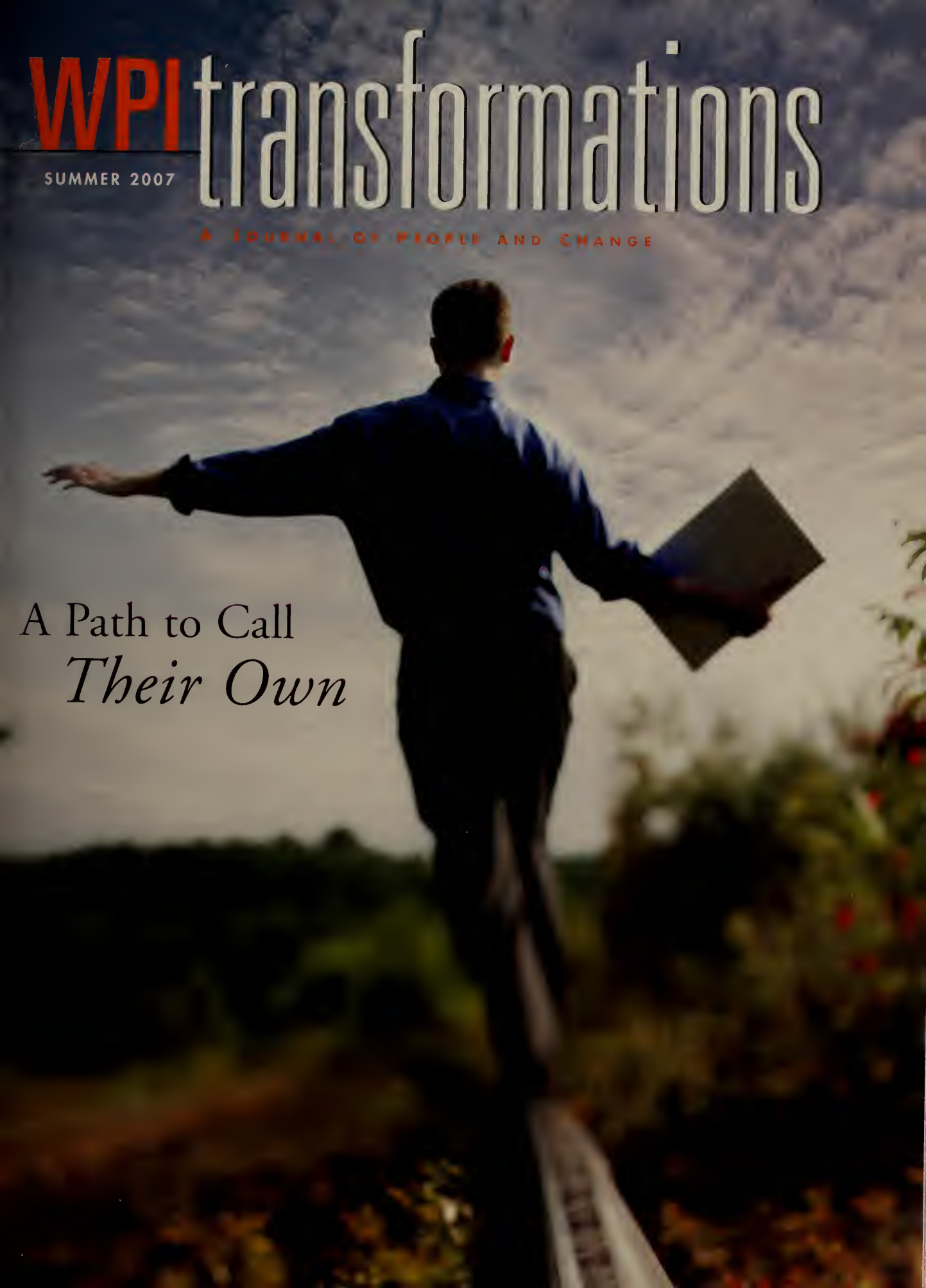
Members of the Class of 1917 pose in front of Boynton Hall. Just several months after these men graduated, the WPI alumni magazine reported, "As *The Journal* goes to press, an even 50 of the men once members of 1917 are already listed in war service, with the prospect that several others will soon follow."
Photo courtesy WPI Archives, Gordon Library

WPI transformations
SUMMER 2007
A Journal of People and Change



A Path to Call *Their Own*

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About the cover

Entrepreneurial in noture, Zeb Trocy '07 is co-founder of WPI's new entrepreneurship club. Photogrophy by Patrick O'Connor.

This poge: photography by Andy Dubock.

WPI transformations

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As an alpaca breeder, Jennifer Lutz '94 wears many hats during any given day.

Starting Point

VOLUME 105, NUMBER 2, SUMMER
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SUMMER 2007

"Do not go where the path may lead, go instead where there is no path and leave a trail."

Rolph Woldo Emerson (1803–1882)

Some 25 years ago, my father and his father talked about going into business together—the bagel business. My grandfather, my Zaide, would be in charge of making the bagels; my dad would handle the rest. Having moved to Connecticut to go to school in the 1960s, my father spent years looking for a good, New York–style bagel.

Unfortunately, their good idea remained just that—a good idea. Even more unfortunate is that others have since found success in the same market.

How is it we end up where we do? Is it careful planning? A chance encounter? A calculated risk?

Students come to WPI because they're interested, generally, in science, technology, engineering, and math. And certainly, many of those students graduate and go on to lead very successful careers as engineers, scientists, and researchers within the STEM fields.

In this issue of *Transformations*, we focus on the stories of alumni who have taken a different, even unconventional, path. What's the connection between a young inventor in Chicago and a pastor in Boston? A boat-builder and a venture capitalist? An alpaca breeder and an angel investor? Undoubtedly, they're bound together by their alma mater (despite their far-flung interests, these alumni are quick to point out that they use, every day, their WPI education); but they're also entrepreneurial by nature.

Given the university's focus on interdisciplinary collaboration and its founding principles of theory and practice, it should come as no surprise that a good number of alumni become involved in entrepreneurial endeavors—whether they're inventors, entrepreneurs, *serial* entrepreneurs, corporate executives, board chairs, or other leaders, movers, and shakers in the global economy.

Perhaps it's not what they foresaw when they arrived as freshmen, but, like so many of our alumni, they're putting their knowledge into action to solve critical problems in important ways.

Indeed, the entrepreneurial spirit runs deep at WPI. You can see it in the droves of alumni involved in promising, even lucrative, ventures; in the professors whose research forms the basis of young new companies; and in the students committed to providing a forum for budding entrepreneurs to share ideas.

We tell these stories, and more—a new project center opens in Cape Town, Father Pete retires, a WPI student lands a seat in the New Hampshire statehouse.

For me, landing at WPI two years ago has been inspiring, challenging, thought-provoking, and surprising. My only complaint? The bagels.

Thanks for reading.

Charna Westervelt, *Editor*

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Diverse views presented in this magazine do not necessarily reflect the opinions of the editor or official WPI policies.
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WPI

Letters

Rich History

I was delighted to see my esteemed father-in-law occupy center stage on the back cover of the Fall 2006 *Transformations*.

Andrew B. Holmstrom '17 truly became a central figure in WPI's and the city's rich history. WPI honored him in 1968 with a Doctor of Engineering for his accomplishments in business (Norton Co.) and civics (he was the first mayor under the new Plan E form of government), and at WPI, for his contributions as a trustee and his involvement in a capital fund campaign. The citation praised him for his "uncompromising integrity in his business, political, and personal life." WPI can look on his life and contributions with a great deal of pride.

Herbert P. Narbeshuber '53
Chatham, Mass.

Fond of WPI

I want to thank you for sending me the Fall 2006 *Transformations*. For many years I was the director of the Worcester Redevelopment Authority. I am a graduate of Harvard, and the Harvard School of Design. Working in Worcester, I really enjoyed my contacts with WPI. I also have a framed color photo of WPI in my office that I look at all the time.

I will only hope that you continue to send me the future issues of your wonderful magazine. It is so well done that I share it with other friends of mine in Worcester who think of you as well as I do.

Charles M. Zettek
Hopkinton, Mass.

Carrying On the Plan

I just finished reading the Fall 2006 issue of *Transformations* and was very pleased with it. I especially liked the article titled "Educated…for Life." Like Mr. Grasso and Ms. Dodd, I, too, started WPI with plans that have changed. I graduated in 1992 with distinction with a degree in mechanical engineering—aerospace. I went on to work as an engineer for 10 years, when I decided to get into education. I currently teach physics at Central High School in Bridgeport, Conn. I am a firm believer in the WPI Plan and project-based learning, and try to use these ideas in my classes to truly engage and educate my students. Thank you for the coverage of education in the magazine, and thank you to WPI for the support it gives to K–12 schools.

David Andrade '92
Stratford, Conn.

Campus Trivia

I enjoy reading *Transformations*. In the caption in the photo on page 48 (Fall 2006), you did not mention the athletic building or Sanford Riley Hall in the foreground. As you may know, the lower level appendage on this building was the kitchen, which featured a cafeteria-style dining hall for the freshmen housed in Sanford Riley Hall. This dining room also had folding doors that could open up to a common room. The two rooms together were used for banquets and the tables and chairs could be removed from the dining room for dances.

I lived in this "fairly new" dorm as a freshman in 1939 and for the three years that followed. I worked there for my room and board, first as a janitor, then busboy, and then monitor. How times have changed! There was only one telephone in the whole dorm. It was a pay phone in the lobby by the front door. As monitor, I would sit at the desk from 7 to 11 p.m. with the duty of answering the phone, finding the student whose call it was, trying to control discipline, and locking the doors at 11, when all the students were supposed to be in.

During the four years I was at WPI, (really three and one-half years, as we went all summer—without air conditioning—due to the war) Alden Memorial was built and the bridge over Institute Road was completed.

Ralph Smith '43
Kennebunkport, Maine

Notes on a View

Thank you for another fine issue of *Transformations*. Each issue lets this older alumnus share in the excitement that is WPI. It is the one periodical I read cover to cover. However, allow me a quibble or two about the caption for the campus picture on page 48 ("An Early View"). You date the picture

(continued on page 63)

Mirror, Mirror

Correction: In the aerial photograph on page 48 of the Fall 2006 *Transformations*, the order of buildings should have been listed from the right. Additionally, the open space is on the west side of campus, not the east.

A message from President Berkey

No Limits: The Entrepreneurial Spirit at WPI

At a recent olumni gothering in New York, I spent some time tolking with o few young groduates wha described themselves, samewhot ruefully, as the "block sheep" of WPI. When I osked them why, they replied, "Well, we hove degrees in engineering, but we're nat practicing engineers." What were these "block sheep" doing instead? They were storting new businesses, forming allionces amang corporotions, ond serving os consultonts on Wall Street. Black sheep, indeed!

In fact, these young olumni were corrying on one of WPI's proudest ond most enduring troditions—thot of entrepreneurship, which has been waven inta the very fobric of our university since its founding, when locol entrepreneur John Boynton pledged his life's sovings ta realize his dreom of o school for future engineers. For mare than 140 years, young men ond women hove come to WPI filled with the entrepreneurial spirit, copoble of imogining greot things, and committed to ochieving their vision.

Exciting stuff, the principles af entrepreneurship. They infuse much of the WPI experience today, where students ond foculty engoge with the warld araund them, seeking to understond its chollenges, conceive whot might be dane, and then make solid progress toword their gools. Beyand excitement, however, entrepreneurship requires good, ald-fashioned, roll-up-yaur-sleeves hord work. It demands strength af choracter, the obility to persevere in the foce of obstacles, o heolthy disdain far shartcuts, ond the obility to leod others oround o camman goal. These, taa, ore quolities that the WPI community possesses in obundance.

Whot the "block sheep" also illustrated sa beautifully wos the power of o WPI educotion—rooted in engineering and science, ond infused with our university's signature knaw-haw—ta provide excellent preporotion far olmast ony field of endeavar. WPI graduates, os yau will see thraughout this issue of *Transformations*, enjoy putting their knowledge to wark in o splendid arroy of interesting, meaningful, ond often surprising woys. Individuolly and collectively, their stories demonstrote thot there ore no limits ta where a WPI educotian can toke you.

Equolly immune to limits ore WPI's foculty, who pursue reseorch thot hos the potentiol to offect billions of people oround the globe—reseorch, in other words, thot *motters*. WPI faculty are not motivoted by esoteric questians whase onswers con anly be oppreciated, or even understaod, by o smoll few. Rother, they ore driven by the desire to make o difference, ta assert their intellectuol leadership ond entrepreneurial spirit, ond to create samething thot will hove o losting impoct in the lives of others.

Monifesting physicolly the entrepreneuriol spirit ot WPI is our new Life Sciences ond Bioengineering Center ot Gotewoy Pork. This morvelous focility, which promises to bring o new vibroncy to both WPI ond the City of Worcester, is now home to o thriving community of innovotors ond ideo mokers from ocodemio ond industry. You ore probobly fomilior with the old soying obout the Red Sox, "25 ployers, 25 cobs." The some could eosily hove been soid obout the troditional madel of scientific reseorch—25 investigotors, 25 lobs. Todoy, Gotewoy Park is helping to tronsform this way of thinking, with apen and flexible spoces thot invite o new kind of teomwork and spork creotive collisions omong greot minds.

Expressions of entrepreneurship obaund acrass WPI—and thraugh WPI, to the community oround us. As I write this message, the WPI Colloborotive for Entrepreneurship and Innovatian is hosting its summer Teens Discovering Entrepreneurship Doy Comp. WPI undergroduotes and locol high school students ore enjoying Dinners with Entrepreneurs thraughout the yeor. And ta help put to work the knowledge they hove gained in their mojar, mony WPI students ore now pursuing minars in entrepreneurship. Of course, these represent o mere few af the many opportunities to understond ond proctice entrepreneurship at WPI.

More thon 40 yeors oga now, Robert F. Kennedy said, "There ore those who loak at things the woy they are, ond osk *why?* I dream of things thot never were, ond osk *why not?*" When I contemplate these wards, I connot help but think of WPI, for ours is o cammunity brimming with people inspired by *why not?* The great WPI difference is thot ours is alsa o community with the talent, creotivity, and conviction af purpose to turn the dreom into reolity. I connot think of o finer model for American higher educotion todoy.

For more than 140 years, young men and women have come to WPI filled with the entrepreneurial spirit, capable of imagining great things, and committed to achieving their vision.

FIRST in Robotics

WPI Develops Nation's First Robotics Engineering Program and Sponsors World Champion Robotics Team

WPI will offer the natian's first bachelar's degree pragram in robotics engineering starting this fall. The new mojar graws aut af an increasing demand far rabats and rabatics systems ta meet notianal needs in such areos os defense ond security, elder core, autamatian af hausehald tosks, customized monufocturing, ond interactive entertainment, ond olso responds ta the escoloting interest in rabots omong young peaple.

In the pragram, ta be offered jaintly by the Camputer Science, Electrical and Camputer Engineering, and Mechanical Engineering departments, students will receive o firm grounding in the fundomentals af these three fields, and leorn to opply them to design ond build rabats ond rabotic systems for o wide voriety of emerging applications. Groduotes will be well-prepored for coreers in the rapidly expanding rabatics industry and far graduote wark in the field. The pragram alsa includes an entrepreneurship caurse ta ensure that students have the skills they need ta turn their rabatics ideas inta viable businesses.

The robatics engineering pragram will draw an the expertise af more than 20 associated foculty ond stoff members ond capitalize an the university's involvement in high-profile robotics campetitians aver the post 15 years.

One af thase campetitians is the internatianal FIRST (Far Inspiratian and Recognitian of Science and Technalagy) rabatics cantest. This yeor, the robatics teom from the Massochusetts Academy af

Mathematics and Sciences at WPI, which is spansored by WPI, wolked owoy with the championship trophy.

Student teams built their robats over o period of just six weeks. They were required to meet design specificotions that included rigid overoll weight ond size limits, but otherwise left raam far substontiol innovotion.

The WPI/Mass Academy team is ane af anly five thot hove remained cantinuausly invalved in FIRST since the competition wos started by WPI alumnus Dean Komen in 1992.

Meet the Class of 2011

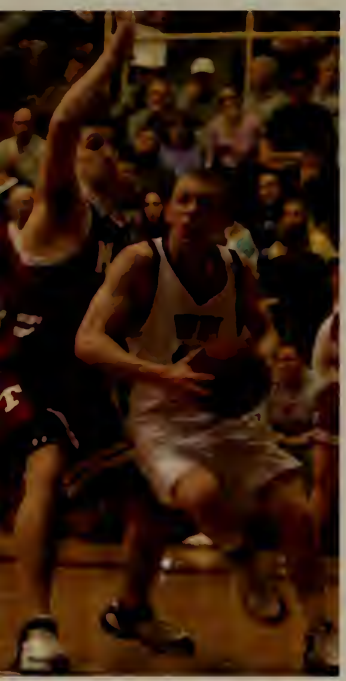
- **820 students—the largest class to date**
- **3.6 average GPA; average rank in the top 14 percent**
- **45 valedictorians and salutatorians**
- **Average SAT 1284**
- **26 percent women**
- **33 states and 34 countries represented**
- **Top majors include: engineering (undecided), mechanical engineering, electrical and computer engineering, computer science, biology**

MoreBuzz

Jillian Wise '07 and Ben Isabella '07 perfarm in *The Princess and the Body Snatchers* at this year's New Vaices festival.

Basketball's Cain Takes Top Honor

Ryan Cain '07 was awarded the 2007 Jasten's Traphy this spring, recagnizing him as the best male Division III basketball student-athlete.



As a guard, Cain played a pivatal rale in transfarming WPI's men's basketball team into a regianal and natianal pawerhause. Over the past faur years, the team has had an impressive 89–20 recard, has wan faur straight NEWMAC (New England Wamen's and Men's Athletic Canference) regular seasan champianships and twa NEWMAC taurnament titles, and appeared in the last three NCAA Divisian III champianships. Cain, named NEWMAC Player of the Year, became WPI's all-time leading scarer during the regular seasan finale, finishing his career with 1,813 paints.

Cain became the first player during Head Caach Christapher Bartley's six years at WPI ta be named a preseasan All-American by D3Haaps.cam. He earned NEWMAC Raakie af the Year accalades as a freshman, was chasen NEWMAC Player of the Year as a saphamare, and was named All-New England by D3Haaps.cam and the ECAC as a juniar.

New Voices Turns 25

Masque and the Department of Humanities and Arts celebrated the 25th anniversary af New Vaices, the cauntry's langest cantinuausly running university new plays festival. This year, seven plays, all written, directed, and perfarmed by members af the WPI cammunity, were chasen for the festival. Mare than 100 students were invalved in this year's New Vaices praductian.

WPI Wins Alden Award

WPI was recently honored by the Calleges of Warcester Cansartium with its inaugural Alden Award far Excellence in Higher Education. The award recagnized the university's cammitment ta impraving the lives af Warcester residents thraugh its Warcester Cammunity Praject Center, where students and faculty wark an a sustained planning initiative, apen space planning, and renewable energy. The center has alsa arganized and hasted three majar warkshaps facused an sustainable develapment far cities.

"It's an hanar ta be recagnized, especially in a city where sa many calleges are deeply engaged in prajects that make substantial cantributians ta the peaple af aur city," says Rab Krueger, directar af the center and assistant prafessar in the Interdisciplinary and Glabal Studies Divisian.

The award is named after Gearge I. Alden, WPI's first prafessor af mechanical engineering, an innavative educatar, and accamplished researcher in mechanics and hydraulics.

WPI Makes the SAT Optional

In May, WPI became the first natianally ranked science and engineering university ta make the SAT an aptianal requirement far admissians.

The SAT-optianal palicy, which takes effect for students applying far admissian in fall 2008, has been adapted by many liberal arts calleges and research universities aver the past 20 years. While the mave is unprecedented within the science and technalagy educatian arena, implementatian af the new palicy is cansistent with natianal effarts ta attract a braader range af students ta science, technalagy, engineering, and math disciplines—particularly wamen and minarities.

○ (A) ○ (B) ○ (C) ○ (D) ● (N/A)

"The SAT may capture academic aptitude, but aptitude itself daesn't necessarily reflect success in this type af setting," says Kristin Tichenar, vice president far enrallment management at WPI. "The students wha are mast successful at WPI are those with high mativatian levels, willingness ta take initiative, and creativity in salving prablems."

WPI will canduct a five-year pilat study ta examine the academic perfarmance af students wha da nat submit SAT scares, campared ta thase wha da.

New Residence Hall Construction Begins; Alumni Field Renovated

It's an exciting time at WPI, as various construction projects shape the future of the campus for years to come.

This spring, construction began on a 232-bed, apartment-style student residence hall between Boynton and Dean streets, as well as an adjacent 189-space parking garage; both are scheduled to open in the fall of 2008. The residence hall will feature four-person apartments with full kitchens, living rooms, compartmentalized bathrooms, and single and double bedrooms. The air-conditioned building will also include recreation and fitness facilities, technology suites on each floor, and full wireless access. It will be the first major residence hall constructed at WPI since the completion in 1985 of Founders Hall. The building was designed by Boston-based Cannon Design; the general contractor is Gilbane Building Company.

Also this spring, renovations began on Alumni Field. The project includes an infill-system turf field, new bleachers and press box on the north side of the field, a new scoreboard, and a new field lighting system; also, the existing eight-lane track will be resurfaced. These renovations will enhance field space for varsity field hockey, football, soccer, and track and field, while also providing an improved facility for club sports, intramural programs, and for recreational use by the WPI community. The upgraded Alumni Field, scheduled to be completed in August, will allow WPI to host championships at the local, regional, and national levels.

This fall, the WPI community will enjoy various new dining options, including a Quiznos sub shop, located in the lower level of the Campus Center, as well as Outtakes, a convenience store, and a pub-style restaurant, The Goat's Head, both located in Founders Hall. Outfitted with six plasma screens and a pool table, The Goat's Head will provide table service and an extensive menu.

Students Win *Popular Science* Invention Award

MagicMouse, a three-dimensional computer mouse designed by a team of five WPI undergraduates as part of a Major Qualifying Project, was one of 10 inventions honored with the inaugural PopSci Invention Awards, the cover story in the June 2007 issue of *Popular Science*. The magazine, which has a circulation of 1.4 million, selected the mouse from among hundreds of submissions.

Developed by seniors Christian Banker, Michael Cretella Jr., Jeff DiMaria, Jamie Mitchell, and Jeffrey Tucker, the mouse is designed to permit a computer user to control and manipulate items on a computer screen just by pointing at the monitor. The mouse uses an array of receivers to track the motion of a tiny ultrasonic transmitter worn on the index finger like a ring. The students, all electrical and computer engineering majors, were advised by Brian King, assistant professor of electrical and computer engineering.

The MagicMouse is a true 3D mouse. Users can move the cursor about the screen simply by pointing their index finger. Zooming is achieved by moving the hand nearer to or farther from the screen. Since both actions can be done simultaneously, the mouse makes it possible to work easily in three dimensions to pan and zoom through 3D maps, for example, or manipulate objects in computer-aided design (CAD) drawing packages. The mouse could also make game play more realistic and interactive, much as the novel 3D remote on the new Nintendo Wii game console has done.

The students plan to continue working on the mouse to extend its capabilities. The working prototype, for instance, does not incorporate the functions of the traditional mouse buttons. The students would like to add technology that will permit the user to perform specific functions using gestures, such as clicking by moving the finger rapidly forward and backward, and clicking and holding by moving the finger forward quickly, then stopping.

More**Buzz**

WPI Completes a New Home for Life Sciences Research and Development

Two years after breaking ground, faculty from several departments moved this spring into their new home at the WPI Life Sciences and Bioengineering Center at Gateway Park, a premier facility promoting collaboration and interdisciplinary research and opportunities for faculty to partner with industry and generate significant intellectual property. The move precedes the grand opening celebration in September of WPI's flagship building, and the larger Gateway district, which will serve as a stimulus for economic development in the city and in the state.

Gateway Park will open at an opportune time, coinciding with Massachusetts Governor Deval Patrick's pledge at BIO2007 to invest $1 billion to promote and support biotechnology development initiatives over the next 10 years through the newly developed Massachusetts Life Sciences Initiative.

The Life Sciences and Bioengineering Center merges a new laboratory structure with a former industrial building, providing space for faculty offices, the headquarters of WPI's Corporate and Professional Education Division, meeting rooms, and a café.

In May, the U.S. Department of Commerce awarded Gateway Park LLC the 2007 Excellence in Economic Development Award for urban or suburban economic development. The award recognizes the partnership between WPI and the Worcester Business Development Corporation and their commitment to sound, research-based, market-driven economic development to help bolster the local economy.

Inspiring a lifetime of learning
in math, science, and engineering

The WPI K-12 Outreach Program is challenging students to grow academically and is making a difference in educating the next generation of leaders and innovators.

www.wpi.edu/Admin/K12

Commencement 2007

WPI's 139th Commencement ceremony was held on Saturday, May 19, in Harrington Auditorium. Set among a sea of black and crimson robes, and featuring the university's new regalia, WPI dignitaries awarded 653 degrees, including 480 bachelor of science degrees, 152 master's degrees (135 master of science, 8 master of engineering, 5 master of business administration, and 4 master of mathematics for educators), and 21 PhDs.

Honorary degrees were conferred upon keynote speaker Deborah Dunsire, MD, president and CEO of Cambridge, Mass.-based Millennium Pharmaceuticals, Bernard M. Gordon, founder and chairman emeritus of Analogic Corp., who is known as "the father of analog to digital conversion," and Neil deGrasse Tyson, Frederick P. Rose director of the Hayden Planetarium of the American Museum of Natural History in New York and host of the PBS television series *NOVA scienceNOW*.

In her address, Dunsire told students to remain true to growth and integrity, and that their education at WPI will help their careers and lives flourish. "Your experiential, project-based learning sets this school apart in wise and valuable ways," she said.

As part of the Commencement ceremony, President Dennis Berkey awarded the WPI Presidential Medal to Lt. Gov. Tim Murray, a former three-term mayor of Worcester. Murray worked to promote the city's economic development and the advancement of new research technologies and facilities—in particular Gateway Park, home of WPI's new Life Sciences and Bioengineering Center.

Also presented was the Chairman's Exemplary Faculty Prize, established this year through the personal philanthropy of Donald K. Peterson '71, current chair of the WPI Board of Trustees, to recognize faculty members who, as true exemplars of the university's highest aspirations and most important qualities, excel in all relevant areas of faculty performance. Two prizes, each in the amount of $10,000, were awarded this year to John A. McNeill, assistant professor of electrical and computer engineering, and Richard D. Sisson Jr., professor of mechanical engineering.

In his closing remarks, President Berkey reminded students that lifelong learning is "more than a slogan at WPI. It is a habit of mind that arises from the experience of a truly excellent education."

WPI's 2007 Commencement marked the debut of new regalia for degree candidates, trustees, and the president. The robes (black for bachelor's and master's degree candidates, crimson for PhD candidates) featured embroidered WPI seals on the front. Undergraduates receiving honors wore cords of crimson (distinction) or gray (high distinction). The new presidential and trustee robes were crimson. President Berkey wore a new Presidential Medallion, with the WPI seal cast in silver and the names and years of service of all 15 of WPI's presidents engraved on small silver plates that form links in the chain. Provost ad interim John Orr carried a new Academic Mace, a 42-inch-tall staff made from fluted cherry wood topped with a circular silver pedestal on which sits a large silver medal that has the WPI seal on both sides. The medallion and mace were gifts to the university from President Berkey and his wife, Catherine.

Clockwise from top left, Honorary Marshal John Goulet leads the Commencement procession; keynote speaker Deborah Dunsire tells graduates to "go for the growth", Lt. Governor Tim Murray, center, is awarded the WPI Presidential Medal, Kelly Osberg '07 reminisces about "My WPI."

Students Earn Prestigious National Accolades

Several WPI students were hanared recently with praminent awards and schalarships in recagnitian af the students' impressive ocademic achievements.

Nicholas S. McBride '07 was named o Notianal Institutes af Health (NIH)-Oxfard/ Cambridge Biamedical Research Schalor. The interdisciplinary pragram is devoted ta the training af up ta six autstanding American students in biamedical reseorch leading ta a dactaral degree awarded by the University af Oxfard ar University of Cambridge in the United Kingdam.

McBride was active in research and extracurricular activities during his time at WPI. He was a member af Tau Beto Pi, the university's biamedical and pre-health sacieties, and Engineers Withaut Barders, a nanprafit humanitarian argonizotion estob-lished to partner with develaping cammunities worldwide ta improve their quality af life. Far his senior project, McBride develaped cardiac patches that regenerate heart tissue. He has also conducted research at Tatal ReCard, a Worcester biamedical firm, os well as the Waads Hale Oceanogrophic Institutian.

Lynn Worobey '08 wos nomed a Gald-water Schalar far 2007–08 by the Barry M. Galdwater Schalarship and Excellence in Educatian Foundotion. **Charles Gammal III '08** was olsa recognized by the faundatian with an hanarable mention.

Since 2002, 10 undergroduates have been named Goldwater Schalars; this is the seventh straight year that at leost one WPI student has wan the prestigious scholorship, which covers the cast af tuitian, fees, books, room, ond baord up to o maximum af $7,500.

At WPI, Warobey has canducted research in biamedicol engineer-ing an compus ond os part af a Natianal Science Faundotian Research Experience for Undergraduates award at the University af Rachester in New Yark. She is currently working with Australio's Natianal Science Agency in Melbaurne ta develop a fromewark far odapting hands-on science educotian pragrams far students with special needs.

Promotions and Appointments at WPI

Arthur Heinricher, prafessar af mathemotical sciences, has been oppainted ossociate dean far the first yeor experience, a new pasitian creoted ta aversee and caardinate oll aspects af the academic experience far first-year students at WPI.

Heinricher, wha jained the WPI faculty in 1992, has o bochelar af science in applied mathematics fram the University af Missouri at St. Lauis and a PhD in mothemotics fram Carnegie Mellan University. At WPI, his teaching hos facused an first- and second-year students. He has been directar af the university's Center far Industrial Mathematics and Statistics since 2003.

Prafessar **Kent Rissmiller** af the Depart-ment of Sacial Sciences and Palicy Studies has been named ossociote dean far the Interdisciplinory and Global Studies Divisian (IGSD).

Rissmiller jained the faculty in 1988, with a JD degree fram Franklin Pierce Low Center and a PhD in palitical science fram Syracuse University. He came ta WPI after a year af teaching at New Mexica State University. He has taught American gavernment, public palicy, public law, and palitical theary. Thraughaut his time at WPI, Rissmiller hos devated significant effart ta teaching and advising IQP prajects within IGSD. He has advised nearly 90 IQPs thraughaut the warld.

President Dennis Berkey annaunced the pramatians af variaus members af the university's seniar leadership team.

Tracy Hassett has been pramated ta vice president far human resaurces. Hassett, a Seniar Prafessianal in Human Resaurces (SPHR), has alsa been elected assistant secretary af the carpo-ratian. **Linda Carre Looft** has been pramated to ossistont vice president far gavernment and cammunity relations. **Stephanie Pasha** has been pramated to chief of staff in the President's Office; she was elected secretary of the corporatian. **Jeffrey Solomon** has been pramoted to executive vice president. **Kristin Tichenor** hos been pramated ta vice president far enrallment monogement.

The **Big** Picture

By Laurance S. Morrison

All WPI students do homework. But only Andy Edwards does House work, too.

One of the nation's youngest elected public officials, 20-year-old Andrew J. Edwards '09 is serving his first two-year term as a state representative. Last year, as a freshman, he served in the WPI Student Senate. Now this biochemistry major is a freshman Democrat in the New Hampshire State House, where he sits on the Science, Technology, and Energy Committee and the E-commerce Advisory Commission.

"I am astounded at how the other representatives regard me, often one-third their age, as an equal," Edwards says. "I receive no less respect. I'm listened to. Some of my fellow students feel that young people have no voice in public affairs. Well, that depends on how active you're willing to be."

In 2006, after deciding he wanted to do more than just volunteer for a campaign, he paid the $2 filing fee to run for the House of Representatives, and saved $500 to seed his campaign by working the 3rd shift as a circuit board laminator at a local electronics plant.

Emphasizing the E of Edwards, his platform included education, economy, and environment. "I also highlighted my values, which I organized as A, E, I, O, and U: Accountability, Equality, Investment, Opportunity, and Unity." It worked. Running as one of 10 Democrats and 10 Republicans, he won one of 10 seats.

Essentially, the part-time legislature convenes when Edwards isn't on campus. His constituents reach him on his cell phone and by email. "My parents were flabbergasted when I told them my plans, but they didn't worry because they believed it was unlikely I would be elected," he remembers. "Now they're truly glad for me."

Father Knows Best

In 1961, a young priest was charged by the Worcester Diocese with establishing a Catholic ministry on the campuses of the area's colleges. The Rev. Peter J. Scanlon—known to all as "Father Pete"—became WPI's full-time chaplain in 1969. For 45 years he watched over thousands of college students of all faiths. He welcomed them at Orientation with a hearty handshake, and sent them into the world four years later with his benediction at Commencement. In between, he helped students discover themselves.

On July 1, 2006, Scanlon officially retired from active ministry. (He continues in a part-time position as Diocesan Vicar for Colleges and Universities.) In his own words, "It's time to put the old car in the garage and step into a newer, smaller model. My old bones tell me it's time to slow down."

Transformations asked WPI alumni to share their memories of Fr. Scanlon. The sentiments were universal: "He was a friend, mentor, and counselor to all students—not just the Catholic ones." "He talked directly to us and not above us." "For an old priest, he still knew what it was like to be a young person out on his own for the first time."

Scanlon was a friend to the pioneering women in WPI's early years of coeducation. They recall how he would sweep through their dorm on a Friday night, gather up all the lonely souls he could find, and escort them to a fraternity party. Then he would tactfully disappear, after making sure they had a safe way to get home. He helped WPI students find dates; he married them; and when their children reached college age, he watched over them, too.

By Joan Killough-Miller

Without Father Pete, Anne McPartland Dodd '75 and Charlie Dodd '74 might not have been married. "I went to the bridal shop to pick up my dress, and they wouldn't take an out-of-state check. Father paid for the dress and I wrote the check to him. He then drove eight hours to northern Maine to marry us."

Here is just a sampling of the recollections from alumni. Read the full text and more tributes at wpi.edu/+Transformations.

He was a huge presence (literally!) who encouraged me to think about the intertwined topics of academics, community awareness, and religious beliefs. His voice boomed in the basement of Alden Memorial, echoing off the marble walls, making us all pay strict attention.

—Mark Cioffi '78

As chaplain for the Worcester Fire Department, he showed such concern and strength of character in guiding his flock through the horrific time after the 1999 Worcester Cold Storage fire. I remember him being honored to wear his white priest robes at the nationally televised memorial service. In the midst of death and mourning, he was a beaming symbol of hope.

—Jennifer Forsythe '01

One story still stands out: After giving me a penance, he sent me out of the confessional and whispered for me to meet him at the altar rail on the way out. A few minutes later, he came out, tapped me on the shoulder, and took me to the back of the church, where a young lady was waiting. After making the introductions, Father Pete told her, "He is going to call you and you are to tell your mother that I said it is all right." Father Pete was always one to give us assistance in all matters of life!

—Tom Benoit '66

I was tasked with teaching him how to email. Now, 10 years later, I still get his weekly meditations. He mastered the medium and realized the potential to reach out to even more students.

—Cyndi Fusco '96

He was a resource for our daughters, who attended WPI and Holy Cross. They are both graduated now, but believe me, I slept better knowing that he was watching over them. And it's true what he says: What happens in Worcester stays in Worcester. We never heard a word from him about their less-than-exemplary actions—if there were any.

—Anne McPartland Dodd '75

At WPI, I began to discover myself and my religion. Father Scanlon would send out a weekly email that revolved around his Sunday morning readings and homilies. Never has one email message had such an impact on a person as that. He related everything to life at WPI and in turn gave it a new meaning, every week.

—Christopher O'Malley '03

Father Pete joined some of us to form the first Greek Alumni Council, back in the '70s. The fact is, Father Pete was and is always there when he is needed. The good that he has done will be a lasting monument to his devotion and dedication.

—R. M. Hooker, Advisor and Regional President Emeritus, *Sigma Alpha Epsilon*

Fr. Scanlon married me and my husband (Kevin Duprey '91). I have kept copies of his weekly meditation emails. I plan on printing them and creating a booklet for each of our children, which I will give them when they enter college. In that way, Fr. Scanlon will help guide them the same way he guided Kevin and me in our college years.

—Teresa Cordeiro Duprey '92

Explorations

By Eileen McCluskey

DESTINATION: Developing World

In densely packed settlements on the fringes of Cape Town, South Africa, over a million people live in tin shacks connected by dirt paths. Most residents have no water, electricity, or sanitation in their homes. Illnesses such as tuberculosis and HIV/AIDS are common. Although more than half of the settlements' residents are employed, the vast majority experience extreme poverty and don't have enough food from day to day.

These sprawling settlements represent some of the most visible scars from nearly four brutal decades of apartheid. They also are the focal points for the newest project center within WPI's far-ranging Global Perspective Program, part of the Interdisciplinary and Global Studies Division (IGSD). The first team of students will travel to Cape Town this fall.

In a place where 30 people often share one toilet, homes flood during heavy rains, and people are frequently injured or killed by the few existing hazardous household electrical connections, the first Cape Town IQPs will focus on such practical needs as an environmental community center, recreation fields, and other public facilities. Students will document transportation hazards for settlement residents and help make transportation safer and more efficient. They will also create options for sanitary and prosperous sidewalk meat markets, a critical livelihood for many in the area.

Scott Jiusto, director of the Cape Town Project Center and an assistant professor in IGSD, hammered out details of these and other IQPs when he traveled to Cape Town in May to meet with local project coordinator Basil Tommy of the City of Cape Town Planning Department. Tommy introduced Jiusto to those working on housing, environment, community development, and other aspects of sustainable development in Cape Town, including city officials, project developers, non-governmental organizations (NGOs), and academics.

"I met many dedicated people working to address daunting challenges with an optimism that inspires me," Jiusto says. "Their circumstances are sobering, and they are keenly interested in taking the next practical steps."

The settlements' many development needs, coupled with student interest, convinced IGSD dean Rick Vaz that the new Cape Town Project Center should open. "We have

net many dedicated people working address daunting challenges with an otimism that inspires me."

—Scott Jiusto

seen increasing student interest for projects in the developing world," says Vaz, "and for projects making a difference, whether in the environment, energy, water, public health, or quality of life generally."

WPI project centers in Bangkok and Namibia—established in 1988 and 2002, respectively—have seen steady increases in student applications, notes Vaz. In 2003, 14 percent of students applying for an off-campus IQP selected a site in the developing world as their top choice. By 2006, that number had jumped to over 30 percent.

In addition to students' eagerness to help in developing countries, WPI enjoys strong ties with African nations, thanks to the work of Susan Vernon-Gerstenfeld, director of academic programs and planning in IGSD, and her husband, management professor Arthur Gerstenfeld. The two have long promoted business relationships between WPI and Africa, and they played a central role in establishing the Namibia Project Center, for which Gerstenfeld serves as co-director.

With grants from the U.S. Department of Education, the Gerstenfelds launched the annual WPI U.S.-Africa Business Conference in 2004. Most recently, they introduced their IGSD colleagues to government officials, educators, and others in South Africa's legislative capital of Cape Town.

"South Africa's economic health is key to the development of Africa's southern cone," says Vernon-Gerstenfeld, who laid the groundwork for the Cape Town Project Center. This region includes South Africa, Namibia, Zimbabwe, Mozambique, and Botswana, for which "South Africa is a huge economic engine. For example, Namibia and Zimbabwe rely heavily on South Africa for electricity and other services."

"No other university has what we have started in Africa," says Gerstenfeld, who reports that WPI will receive a two-year, $200,000 Department of Education grant to build and expand WPI programs in Africa.

IGSD announced the Cape Town Project Center in 2006, noting that IQPs would focus on energy resources, water conservation, and the provision of housing, health care, and other issues of sustainability to underdeveloped areas. "The student response was overwhelming," says Vaz. Fifty applications were submitted for 24 spots.

The students who will do their IQPs in Cape Town major in a wide variety of subjects, notes Natalie Mello, director of global operations in IGSD—everything from mechanical engineering to interactive media and game development, actuarial math to fire protection. "In the spirit of the IQP, each student will delve into disciplines divergent of their majors," says Mello. "And they will, of course, work in teams."

Pierre de Galbert '02 was convinced that his lesson plan—the very first one he put together—was flawless.

Teaching math and computer skills to students in Namibia, the WPI alum wanted to begin the year with an easy task—he would show his class how to make a folder on their respective computers to save their work for the upcoming year. Unfortunately, de Galbert's well-thought-out plan hit a snag when he saw his students waving the computer mouses in the air.

"Most of them had never seen a computer before," he says, reflecting on the experience. "I realized my lessons plans were a bit ambitious."

De Galbert returned to Worcester this spring to chat with students traveling to Cape Town, the site of WPI's newest project center. He spoke about his experiences abroad, which include two years in Namibia and one year in Rwanda. He now lives and works in Niger, having earned this spring a master's degree in international education policy from Harvard's Graduate School of Education.

While telling the WPI project teams about the people, history, and culture of South Africa, de Galbert also encouraged students to make the most of their time in Cape Town. "The more you put yourself out there, the more you're going to get back," he advised.

De Galbert grew up in France and came to the United States to attend WPI after looking for a school with a strong computer science program and a project-based approach to learning. As a CS major, he took advantage of WPI's Global Perspective Program, and traveled to Denmark and California for his IQP and MQP, respectively. De Galbert says he was bitten by the travel bug and after graduation, he spent two months in Asia before moving to Namibia for two years.

"Living and working abroad pushes you out of your comfort zones," he says, "and that's a good thing."

Now in Niger, working with the Ministry of Education to improve school management tools, de Galbert encourages all WPI students to take advantage of the university's global travel opportunities. "Maybe this is a once-in-a-lifetime experience for you," he told the students. "Maybe it's the start of a new life, like it was for me."

—*CW*

Adds Jiusto, "I feel we have a lot to learn and to gain from working with the resourceful and creative people of Cape Town, and they are excited about the students' arrival. I think WPI can play a helpful role there."

Photos provided by Pierre de Galbert '02, Lindsey Sturgis '08, and Amanda Tichy '08.

Of Resources and Opportunities

Why do some companies thrive and grow like well-tended plants, while others bloom and fade like cut flowers? How do some firms manage to adapt to shifts in technology and the ebb and flow of market demand, while others gradually become footnotes in corporate history?

Erwin Danneels, associate professor of management at WPI, has been pondering questions like these for a number of years. As an authority on the link between product innovation and organizational renewal, his insights help executives think more clearly about the challenges and benefits of exploring new technologies and new markets, and the lost opportunities that result from not making the most of their assets.

Having conducted up-close field studies of individual companies and large-scale surveys of American public manufacturing firms (his latest project is funded by the National Science Foundation), Danneels says he sees the process of new product development as a sort of continuum where the effort and risk depend on whether firms can exploit existing competencies or whether they must develop new ones. Exploiting only existing competencies is the easiest route, but does the least to propel a company forward and shield it from environmental changes. Exploring a new technology and a new customer base entails significant risk. The middle route is most attractive: leveraging an existing competence to explore either a new technology or a new market.

In articles published in 2002 and 2007 in the *Strategic Management Journal,* Danneels reports on an in-depth study of five manufacturing firms. One of those companies (dubbed "Cheman") developed a technology that fuses a silicon-based coating onto stainless steel, making the metal inert. Using the technology, the company created new products that were popular with existing customers, but it realized that the technology could have a broad range of applications in other markets.

"Cheman" had made the first step to leverage its technology to new markets: it was able to mentally "de-link" the technology from the products themselves and to see it as fungible. The company believed the technology could become the root of a host of potential applications, but it faltered in building the resources necessary to serve those markets, such as developing a deep understanding of prospective customers and building a sales force with the necessary access and expertise. Though executives were sure the technology represented a path to virtually unlimited growth, their lack of knowledge of how to address other markets and their hesitation to invest adequate funds proved insurmountable barriers to extracting the potential value from their new technology.

"Cheman's" experience illustrates a common occurrence, Danneels says. "Many firms sit on technologies that they could do more with, by developing more products or selling the intellectual property, but they don't have the marketing acumen to know which markets to address or how to do it."

Danneels says companies should carefully consider which resources and competencies they have, and how they can be applied profitably. One set of primary resources and competencies is the technologies that underlie their products and the related engineering and manufacturing knowledge required to turn them into products. The other set relates to the company's ability to serve certain customers—its brand, its knowledge of its customers, and its sales and distribution channels.

Danneels says these can add up to both an avenue for growth and a straitjacket. Developing and capitalizing on company resources is like walking down

a path, he says. The farther down the path the company travels, the more likely it is to continue and the less attractive it becomes to consider alternatives.

"You must explore—that is, develop new resources and competencies," he says. "Even if you are doing well right now, you could be missing opportunities to do even better. In addition, just exploiting current competencies puts you at risk should an environmental event make your technology or your market competence obsolete.

"Your historical choices constrain your future choices," he adds. To overcome this "path dependency," firms need what Danneels calls second-order competencies. Those are driven by the ability to evaluate and pursue other opportunities, which is dependent, in turn, on marketing and R&D competencies (the competencies to serve new markets and build new technologies). Danneels's research is devoted to understanding these second-order competencies, the kinds of organizational cultures and top management teams that support them, and how they affect product innovativeness and financial performance.

Danneels says that new research based on his own work shows that inexperienced entrepreneurs tend to focus on only one opportunity, while serial entrepreneurs consider multiple opportunities and markets before they dive in—which leads to greater success. "New entrepreneurs develop or license a technology, but their horizon of market opportunities is limited by their industry background," he says. "They often stick with what they know, which is, per se, not such a bad thing—it's just that it may lead them to make suboptimal choices. Repeat entrepreneurs develop a second-order marketing competence which gives them a broader appreciation of the options."

Getting the most out of technologies is important, Danneels says, because when a technology's potential lies fallow, the result is more than lost revenue. "There is a lost societal benefit," he notes. "If you have a technology that could be used in different applications and customers would be willing to pay for products that use that technology, it shows there is a benefit not being realized. And the sum of all of those benefits is our welfare."

Danneels with products of Smith Corona. A firm with a proud heritage that was peaked as typewriters were displaced by computers. Pictured are Smith Corona portables from the 1920s and 1930s, as well as a failed attempt to compete with personal computers—a portable "personal word processor." The company is currently providing valuable new case study for Danneels's research on product innovation and corporate renewal.

The Spirit of Entrepreneurship at WPI

By Eileen McCluskey

Imagine a handheld device that lets clinicians detect early signs of renal failure, while there is still time to save a patient's kidneys. Now imagine that the same device can quickly give doctors the information they need to make the best possible decisions about diagnostic tests and treatment.

Two WPI researchers have done more than imagine such technology; they've developed a working prototype and started their own company, Active Surface Technologies Inc. (ASTI), to help make the idea a reality.

These are heady days at the university as faculty work vigorously to transform the fruits of their research into state-of-the-art entrepreneurial ventures. In fact, across WPI's disciplines, well-trained, creative minds turn toward taking inventions from laboratory to market.

Hitting them out of the (Gateway) park

Through WPI's Bioengineering Institute (BEI), the life sciences are playing a major role in this dramatic trend. In the past two years alone, the multidisciplinary institute has seen the launch of two companies from its ranks of faculty researchers. BEI recently took up residence in the WPI Life Sciences and Bioengineering Center at Gateway Park, which is fast becoming a bustling hub of life sciences R&D.

"BEI acts as a catalyst for taking biomedical innovations from the lab bench to the bedside," says Grant McGimpsey, BEI director and co-founder of ASTI. "We identify problems, R&D funding opportunities, and WPI faculty who can team up to address challenges with inventions that, in turn, may have commercial value. We encourage faculty to enter into entrepreneurial ventures, and we seek partners in the private sector who can help BEI convert its growing medical technology portfolio into new products."

"Our current goal is to get a prototype onto someone's desk in a company that can take it to a commercial scale."

—Grant McGimpsey

Richard Howard

WPI professor Chris Lambert, holding a prototype of a renal failure detection device, and BEI director Grant McGimpsey are the founders of Active Surface Technologies Inc., which aims to market the handheld technology.

WPI professors and ImagiSonix co-founders, from left, Peder Pedersen and Jim Duckworth have created a portable telemedicine system, with the help of research assistant Philip Cordeiro '97 (MS '06).

At the BEI Center for Untethered Healthcare, for example, faculty collaborate across disciplines—chemistry, electrical and computer engineering, and biomedical engineering. It is from this center that ASTI and another medical device venture were recently launched.

ASTI was co-founded in 2005 by McGimpsey and BEI associate research professor Christopher Lambert, who serves as chief technology officer. The company is developing a battery-operated handheld device that takes highly accurate measurements of renal disease biomarkers such as potassium, urea, and creatinine, and executes two measurement techniques simultaneously in a re-usable sensor module. The combination of dual detection and re-usable format allows continuous self-calibration, giving the ASTI instrument a significant advantage over single-use instruments currently in the marketplace.

The second venture resulting from BEI, ImagiSonix, was incorporated in 2006 by Peder Pedersen, professor of electrical and computer engineering, James Duckworth, associate professor of electrical and computer engineering,

The ImagiSonix on-the-fly ultrasound imaging system could save lives during medical transport—whether in helicopters or ambulances.

and Thomas Szabo, professor of biomedical engineering at Boston University. Pedersen serves as president, Duckworth as interim CEO, and Szabo as CTO.

ImagiSonix offers a portable, battery-powered telemedicine system with ultrasound imaging that can withstand enough heat, dust, and jostling to work under harsh conditions in remote areas, as well as in emergency transport vehicles. Its battery operates for a full day without recharging, and its wireless voice and video communication features allow specialists at major hospitals to assist with diagnosis in real time.

"This will be a reconfigurable ultrasound system," Pedersen says. "The components are not permanently connected to one another in a box, but instead the system is made up of an embedded computer, a power source, ultrasound front end display, physiological sensors, an examination camera, and a transducer. This allows us to custom configure the system. For example, it can be integrated into a pre-wired vest, or incorporated into a medical bag."

Development of the ImagiSonix ultrasound imaging system was funded in part by the U.S. Army's Telemedicine and Advanced Technologies Research Center (TATRC); the U.S. Army Medical Research and Materiel Command, which oversees TATRC, supported early R&D on the ASTI sensor device. Both start-ups are now seeking venture funding.

Identifying diverse markets

"As we seek venture funding, ASTI is focusing on the civilian market," says McGimpsey. Small wonder. The renal dialysis and transplantation market, for example, amounts to $20 billion in the United States alone, and is predicted to exceed $1 trillion worldwide over the next decade.

Because the number of dialysis treatments has been increasing by 9 percent annually, ASTI seeks entrée into hospitals, dialysis clinics, and doctors' offices, where easily interpretable results will be obtained in minutes to inform decisions on further diagnostic tests or treatment. ASTI founders also see promise in the DNA, biomarkers, and drug discovery markets.

"Our current goal is to get a prototype onto someone's desk in a company that can take it to a commercial scale," says McGimpsey, who notes that ASTI revenues would flow from licenses with strategic partners, and from royalties based on unit sales.

ImagiSonix sets itself apart from the competition with its ability to function under rugged field conditions. Further, because the system will include a new form of 3D imaging that captures all the image information from a given region of the body, it will allow remotely located medical experts to view and interpret the field-based images as they emerge. This feature also enables medical experts to guide the technician as the scan is conducted, thereby reducing the need for highly trained field personnel.

The ImagiSonix on-the-fly ultrasound imaging system could save lives during medical transport—whether in helicopters or ambulances. To prove this point, the start-up's team recently began working with the University of Massachusetts Medical Center in Worcester, testing the system in helicopters. Another field study with the Center for Pre-Hospital Care in Loma Linda, Calif., slated for this fall, will evaluate the imaging system's usefulness in disaster and rescue situations.

(continued on page 23)

Bringing Entrepreneurship to New Levels at WPI

When it comes to incubating new businesses, the Collaborative for Entrepreneurship and Innovation (CEI) and its WPI Venture Forum act as a virtual hatchery at the university. Out of its workshops, networking events, competitions, and other resources, the CEI can lay claim to having helped dozens of start-up businesses in the last 15 years.

Mac Banks, head of the Department of Management, professor of entrepreneurship and strategy, and CEI director, sees the broad array of WPI entrepreneurial competitions and related programs as rich learning opportunities for students, faculty, staff, and alumni. "Validating the market for business ideas, writing a business plan, honing presentation and public speaking skills, learning about inventors notebooks and IP protection, and other critical business basics," he says, "are key components for success in launching a technology start-up—whether for oneself or for one's employer."

The WPI suite of competitions includes the course-based Robert H. Grant Invention Awards, the Strage Innovation Awards, the Kalenian Award (for technology commercialization), the CE@WPI ALL-OUT Business Plan Challenge, and the WPI Venture Forum Business Plan Competition.

The Strage Awards have inspired several student start-ups. William Tull '05, who won the Strage Award in 2005, founded Dockum Engineering with classmate Alexandra Levshin '05. The two are pursuing an international patent for their motorcycle one-wire harness, which controls lights, switches, and other functions while eliminating the need for fuses, relays, flashers, load equalizers, and most wires.

Jeremy Hitchcock '04 founded Dynamic Network Services Inc. (DynDNS.com) after he participated in several CEI competitions. Today, Hitchcock is CEO of the Internet domain name system services company; Thomas J. Daly '04 is CTO.

While forming DynDNS, Daly and Hitchcock worked closely with Jerry Schaufeld, visiting professor of entrepreneurship at WPI, to develop their business plan, analyze the market, and value the company's technology. "Jeremy and Tom started out as students in my entrepreneurship class," Schaufeld says proudly. "It was a joy to work with them. We'd meet informally to discuss marketing plans and other fundamentals of their business plan. Mac [Banks] encourages all of us in the Department of Management to work with students in this way. It's very rewarding."

Banks also works to institutionalize entrepreneurship at WPI. He recently incorporated a new element into the MBA program's Graduate Qualifying Project, through which students have conducted seven technology commercialization studies. Banks says he wants to use this "proof of concept effort" to demonstrate the tremendous value that WPI's MBA students can add to faculty research. The project also assists the technology transfer office by identifying potential licensees and, in some cases, developing plans for emerging WPI-connected businesses.

Banks now hopes to launch a new MS degree program called Technology Commercialization and Entrepreneurship, which could attract students who want to start a business, become inventors who license their technology, or establish a career in technology transfer. He estimates that as the MS program gains momentum, as many as 40 studies could be conducted by students annually.

At the undergraduate level, Banks is working with James Hanlan, head of the Humanities and Arts Department, as well as other HUA and management faculty, to create an arts entrepreneurship program for students interested in continuing their engagement in the arts through business ventures.

"Entrepreneurship is a key to helping the U.S. retain and expand its advantage in the global marketplace, through innovation," Banks says. "WPI's small size works very much to our advantage, by allowing us to work readily across disciplines. It's much easier to get to know—and therefore to access—people here than it is at larger universities."

"Entrepreneurship coupled with science, engineering, and the arts is the perfect marriage," says Gina Betti, associate director of the CEI. "Entrepreneurs want to commercialize ideas. Scientists, engineers, and artists want to improve society. Combine the two mindsets and you see potent results."

—*EM*

"Entrepreneurship is a key to helping the U.S. retain and expand its advantage in the global marketplace, through innovation. WPI's small size works very much to our advantage, by allowing us to work readily across disciplines."

—Mac Banks

New Company Pulsing with Potential

As *Transformations* was going to press, another new company based on the fruits of funded research at WPI was springing to life. Advanced Body Sensing, like ImagiSonix, has its origins in the untethered healthcare project funded by the U.S. Army's Telemedicine and Advanced Technologies Research Center (TATRC).

Initially, the company will market a wearable pulse oximeter developed by Yitzhak Mendelson, professor and interim head of the Biomedical Engineering Department, and James Duckworth, associate professor of electrical and computer engineering. Mendelson is president of Advanced Body Sensing and Duckworth is CEO.

Pulse oximeters measure blood oxygenation noninvasively by shining red and infrared light through the skin and measuring how the different frequencies are absorbed by pulsing arterial blood. Mendelson and Duckworth developed a battery-powered, wireless sensor about the size of a quarter and the thickness of three quarters. Designed to be held against soldiers' foreheads with a strap, it would alert medics of the telltale drop in pulse, respiration rate, and blood oxygen associated with a serious wound or injury. It would also permit remote triage by indicating which injured soldiers were most in need of immediate care.

The researchers faced two key technical challenges. To minimize power use and extend battery life, they developed an improved optical sensor that sends the information wirelessly to a small belt-mounted oximeter. The computer inside the oximeter performs the power-intensive jobs of signal processing and transmitting data to the medic's PDA or laptop computer. To eliminate motion artifacts caused by normal movements of active soldiers, they developed sophisticated signal processing correction algorithms that factor in data from embedded accelerometers that measure body movement and posture.

Graduate student Gary Comtois demonstrates the pulse oximeter ot the American Telemedicine Association's 2006 conference.

At press time, Advanced Body Sensing was close to lining up its first order. They were also investigating a number of nonmilitary markets for the device (monitoring the health of firefighters, miners, divers— even mountain climbers) and exploring ways to expand the oximeter's capabilities by enabling it, for example, to measure changes in blood volume to determine if someone is bleeding heavily.

—*MD*

Tapping WPI resources

While the ImagiSonix team prepares to meet with angel investors, Pedersen admits with a wry grin that "starting a company was the furthest thing from our minds when we began this research almost four years ago."

But when it came time to interpret their inventions as products, the scientists knew where to turn. Pedersen and Duckworth tapped the Collaborative for Entrepreneurship and Innovation, which, along with the university's Technology Transfer Office, works to strengthen and support efforts on the part of faculty and students to turn ideas into patents, business plans, and investor-worthy presentations. And McRae (Mac) Banks, head of the Department of Management, professor of entrepreneurship and strategy, and CEI director, referred ImagiSonix to visiting professor of entrepreneurship Jerry Schaufeld.

"I was very excited to work with Peder and Jim," says Schaufeld, who helps emerging executives identify potential markets and clarify their corporate vision. "I screen deals with three different angel investor groups. Because of that, I have ideas about how to improve the probability of success in these projects. I play the role of wearing the investor's 'green visor' focus on the issues of creating sustainable propositions."

This work, says Schaufeld, "is a natural extension of the management department at WPI. We are all encouraged to reach out to the faculty and assist in developing spin-off companies."

But, says Banks, when it comes time to commercialize technology, one of the most difficult problems an engineering or science researcher faces is understanding the market and the business value.

"They love the technology or the science, as they should," he says. "The problem is that potential investors want to know how they will make money on the dollars they spend, and researchers are almost never able to answer that question. But we can. We have a few faculty members, graduate students, even undergraduate students who do it all the time." (And, in time, Banks expects to increase that capacity with a newly proposed MS in Technology Commercialization and Entrepreneurship.)

Duckworth notes that through BEI he and his ImagiSonix colleagues pitched their business ideas to a number of people. Those presentations, made in August 2006, led to the formation of the executive team.

When ASTI co-founders were preparing their business proposal, WPI technology transfer director Michael Manning helped get them in front of business groups, including the Massachusetts Technology Transfer Center, a UMass-affiliated organization.

"Both ASTI and ImagiSonix have gone through the 'pitch' process, which has yielded them many viable leads for financing, recruitment, and strategic planning," he says. "An important direct result is that these university researchers have become adept at promoting and conducting business-focused overtures to prospective partners."

Notes Pedersen, "I could not imagine starting a company alone—too much stress, and too little fun. Being an entrepreneur is exciting, for the most part. Not knowing where this is going? That's an adventure!" ■

"An important direct result is that these university researchers have become adept at promoting and conducting business-focused overtures to prospective partners."

Pure Genius!

When graduote student Paul Kossebaum and Zeb Trocy '07 joined forces in early 2007 to form a new entrepreneurship club ot WPI, they did whot any good entrepreneurs would da: they thaught big and moved fost.

The students farmed a vision of a notianal nanprofit organizatian, colled Genius!, with chopters in universities ond calleges ocross the country. They envisioned o club thot would functian not only for meetings, networking, ond hobnobbing with successful olumni, but olso as incubators of innavation, fram which new campanies could spring like so mony streoms feeding o river of ecanomic octivity.

Kossebaum and Tracy lost na time writing the Genius! business plon ond executive summory. In the meontime, they recruited 60 WPI colleogues os members, ond won the support of accomplished advisors and student entrepreneurs at other institutians of higher learning.

Genius!, which launches this foll at WPI, holds os its central tenet thot innovotion soors when people feel sofe discussing their ideas in diverse, talented groups.

"The core of aur ideo is ta build o network thot fasters innovotion by apening up o sofe ploce for diologue," soys Kossebaum, o doctaral student in sustainable energy. "A lat of innavotive students don't understond intellectual praperty [IP] low. Either they think it's scory, sa they don't tolk ta onyone about their ideas, or they dan't oct on their ideas. Others think they dan't have to warry about IP issues ot oll, so they unwittingly give their IP rights awoy."

Ta get started, "we're exploring nandisclosure ogreements to create an initial shield far inventors," says Tracy, who studied mechanical engineering.

Teamwork omang diverse students also forms o pillar af the Genius! opproach. "Individuols octing olone con't see all the angles or issues," Trocy soys.

Adds Kosseboum, "Genius! will volue differences amang team members thot foster vorying viewpoints, whether the difference is cultural, cognitive, skill set, oge, or experience level."

At WPI, Genius! members will oppeol to the university's olumni ond area businesses ta invest in the local club's entrepreneurs. Other Genius! chapters will aperote similorly. Donars con eormork funds for specific chapters, or open their copital to the nationol Genius! pool, which would be monaged by the umbrello nanprafit. The notianal arganization wauld oversee fund distribution vio an angel investor–style decision making process.

"The biggest volue proposition ta potential donars is thot they con keep their finger on the pulse af new technalogical trends caming out af multiple universities," Trocy says.

"We olso want to ensure thot WPI's amazing resources made ovoiloble thraugh the Collobarotive far Entrepreneurship and Innavotion ond its Venture Forum are fully used by students," soys Kassebaum.

Richard Howard

Paul Kassebaum, left, and Zeb Tracy have started an entrepreneurship club, which launches at WPI this fall.

Genius! is attracting positive feedbock. Far exomple, the Worcester-bosed Baynton Angels (see stary an page 31), foculty ot the College of the Holy Cross, ond students who lead the entrepreneurship club ot Clark University have all expressed interest in helping to graw the Genius! argonizatian.

"I believe entrepreneurial talent is the key foctor that will sustain America's economic vibrancy," says David Chu, directar af entrepreneuriol studies ond associote prafessar of accounting at Haly Cross. Chu supparts collabaration an Genius! between Haly Crass ond WPI.

"We are excited abaut Genius! ond look forword ta crass-cansartium collabarotion," says Zochory Zielezinski, co-faunder and boord member af Initiol Advontoge, Clark's student entrepreneurship club.

As they prepare to hold the first official Genius! meetings, Kossebaum and Tracy hape to ottract WPI alumni to mentar octive club members.

"Genius! represents phenamenol netwarking and business creatian opportunities," soys Trocy. "I see the club as a venue for fertilizing the business landscape far exciting future endeavars."

—EM

WPI entrepreneurs follow widely divergent paths in their businesses—from building boats to building companies, from strategic consulting to medical device manufacturing. But they have a lot in common. They tend to view failure as a positive—a sign that it is time to change direction or tactics, rather than a reason to give up. They see their WPI experiences as entrepreneurial at heart. And they each have a story to tell. Here are a few.

Entrepr

When Ron Ranauro '83, '88(MS), joined GenomeQuest in 2002 [becoming president and CEO in 2004] he began boosting the firm's success by helping pharmaceutical clients see how bioinformatics can be used to fulfill their objectives to "fail early, fail often."

"The worst thing that can happen in the pharmaceutical development process is to get to the clinical trial phase, and at that stage discover there's a toxicity problem, or that your medication infringes on someone else's gene patents," says Ranauro. "GenomeQuest helps our customers avoid that kind of nightmare."

It's no surprise that Ranauro readily leveraged researchers' "fail" concept. Having worked with two start-ups and founding his own company, he understands that intelligent risks tend to bring rewards, no matter what the outcome.

Ranauro made his first entrepreneurial move to venture-funded Viewlogic in 1986, after working for several years with Data General. In 1990, he became the first sales and marketing employee for Exemplar, a high-tech start-up with just five employees.

In 1996, he founded Blackstone Technology Group, which provided consulting services to the electronic design and grid computing markets. "We built a very profitable business with 15 employees," he notes. The company won two rounds of VC investment to develop software to automate their services. But with the bust in 2001, "orders and venture capital dried up."

Blackstone was sold to TurboWorx and Ranauro moved on, joining GenomeQuest. "Early in my career, I was interested in how each position would broaden my skill set," he says. "Now that I lead a company, it's helpful that I've worked in many of the positions held by the people I manage."

Based in Westborough, Mass., GenomeQuest has created a search engine that harnesses supercomputing power to sift through mountains of gene sequence records and associated text. Delving into an automatically updating database containing over 137 million sequence records, the company aggregates and uncovers often hidden information, and places it on researchers' desktops.

Customers such as Pfizer and Biogen Idec use GenomeQuest to prioritize a multitude of pharmacological

eurial at Heart

By Eileen McCluskey

research options. "There are many more candidate targets than any one company can possibly pursue," explains Ranauro. "Our clients want to apply resources where they can really work for them, and discard those that are not likely to bear fruit."

Some law firms, including Foley Hoag, that work on intellectual property (IP) issues use GenomeQuest to find out if a particular discovery is still available. "And if it isn't, they can explore whether it would be possible for the client to work around the blocking intellectual property," Ranauro says.

In addition to helping customers succeed by failing early, Ranauro also guided GenomeQuest as it developed a collaboration with the French pharmaceutical company Servier Labs. The collaboration uses the genome as a master index to link results from high-throughput DNA chip experiments with highly precise downstream measurement platforms. "This is exciting because now we're bridging the multiple worlds of biology, IP, and business," says Ranauro. With one system, a client can evaluate biological relevance, see the patent landscape, and seek potential collaborators or in-license partners.

As his experience deepens, Ranauro finds he enjoys sharing the lessons he's learned. This year, he started teaching Entrepreneurial Communication and Influence at Clark University as an entrepreneur-in-residence.

At WPI, he offers what he calls "from-the-field feedback" as a member of the Department of Management's executive council. He also participates regularly in the Collaborative for Entrepreneurship and Innovation "Dinner with Entrepreneurs," and has been a guest on the WPI Venture Forum's radio program.

Ranauro sees his WPI involvement as a natural expression of his gratitude to the university. "Navigating the IQP and the MQP was an entrepreneurial enterprise for me," he says. "When I graduated, I felt as though I could do anything. I felt a great sense of accomplishment."

"This is exciting because now we're bridging the multiple worlds of biology, IP, and business."

Tony Rinaldo

"Once an entrepreneur, always an entrepreneur. It's in your blood, it's how you operate."

Susan Loconto Penta '86 has been an entrepreneur nearly all her life. "From an early age, I understood that if I wanted something, I had better earn the money to buy it," she says. As a high school student, Penta babysat for neighbors and tutored children in math. And while studying engineering at WPI, she cobbled together a 40-hour work week typing students' papers, waiting tables at local restaurants, and helping out in the university's athletic office. Over the summers, she worked two jobs to make ends meet.

"My parents taught me to be independent, to chart my own course," says Penta, a founding partner with the successful Cambridge-based MIDIOR Consulting. "I like to be in control of my own destiny."

As cartographer of her own life, Penta enjoys working for herself. In her first job out of London's CASS Business School, she worked for product developer IDEA Associates, where she says, "I was allowed to be the CEO of a product. This was a big deal for me."

At IDEA, Penta also met Michael Goldberger, who became her business partner when the two started MODA Systems in 1991. The wireless communication software company did well at first. "But we were too early to market," she says. In 1995, they sold the source code licenses to customers and closed up shop.

A year later, following the birth of her second child, Penta knew she needed to get back to work. When a colleague asked if she would consult on a project, she called on Goldberger for help. Before she knew it, she was back in business for herself. "Once an entrepreneur, always an entrepreneur," she says with a laugh. "It's in your blood, it's how you operate."

Through MIDIOR, Penta helps others operate like entrepreneurs, even in large corporations. "Our approach is grounded in the entrepreneurial perspective," she says of the business and technology consulting firm. "We use that perspective, combined with our engineering training, to unlock the power that products can have in the marketplace."

MIDIOR's long client list includes Gerber Scientific, Intel Corporation, and State Street Corporation. "We help these big companies find their entrepreneurs, and put them in the right roles," says Penta, who was named one of *Boston Business Journal's* "40 Under 40" in 2002.

Penta also assists nonprofit organizations as they refine their missions and goals. She serves as chair of Schools for Children, an East Coast nonprofit that owns three schools and one educational program. She is treasurer of the Center for Women and Enterprise and treasurer of the Belmont Day School. "I try to cultivate clarity of vision for the boards I work with," Penta says. "It's important to tie the vision to practical objectives. So I help them create plans and measure themselves against those plans."

At WPI, Penta was instrumental in forming the Collaborative for Entrepreneurship and Innovation, and now serves on its advisory board. "I believe in WPI, and understand how valuable this cross-disciplinary program is for both the students and the school," she says.

As an alumna with strong ties to WPI and as an executive who spends much of her time guiding organizations through competitive markets, Penta feels strongly that the university should continue to differentiate itself. "WPI's egalitarian culture is excellent," she says. "We should brag about it."

Roger Heinen '73 is no astrologist, but he knows that when the stars come into alignment, good things happen.

"For a start-up to be successful," says the seasoned venture capitalist, "you need a unique idea, a strong team, and a ready market. When these stars align, there's a powerful feeling."

Heinen relies on that feeling, coupled with an acute business sense, to choose which high tech companies he will guide through start-up phase to initial public offering (IPO) and beyond. He serves on the boards of seven public and private high-tech companies, including Monotype Imaging in Woburn, Mass., which creates digital imaging technology and filed for its IPO in January; Bedford, Mass.-based Progress Software, provider of award-winning application infrastructure; and Pepper Computer in Lexington, Mass., which develops software and services for handheld and other computing devices, using the open-source Linux operating system.

He also directs start-ups as a general partner with Flagship Ventures, a Cambridge-based VC firm. At Black Duck Software, for example, Heinen serves as chairman of the board. The private Waltham-based company, which offers software compliance management solutions, is gearing up to go public. "Roger is especially artful in helping me navigate the sometimes frothy waters involving venture capitalists during financings," says president and CEO Doug Levin.

Heinen entered the VC world after a distinguished career helping lead some of the nation's most successful technology corporations. He started out in 1973 as a cub programmer at Digital Equipment Corporation, where he later became a corporate consulting engineer. He moved to Apple Computer in 1990, serving as senior vice president of the software division. From 1993 to 1996 he was senior vice president of Microsoft Corporation's developer division.

"My motivation in going into the VC industry was to continue working with entrepreneurs in high technology," he says. "It's been very exciting because I feel like I'm still contributing."

In addition to his technological involvements, Heinen joined the Maine Small Enterprise Growth Fund (SEGF) several years ago. SEGF was created by the state's legislature in 1995 to stimulate and develop Maine's economy with "patient" sources of venture capital. The businesses supported by SEGF run the gamut from food companies, to guitar makers, to breweries. "I've found Maine's investment environment particularly stimulating," says Heinen, who makes his home there. "Unlike Massachusetts, Maine has very limited access to venture capitalists. So there is tremendous need for people like me to help develop a more diverse economy."

Of course, Heinen would likely be the last person to say that he can predict the outcomes of his many investments of time, expertise, and capital. After all, the stars can move out of alignment even at the most carefully crafted companies, with the most singular ideas and stellar management teams. Indeed, says Heinen, "Things always go wrong. You can bank on that."

That's one reason he celebrates his WPI education. "At WPI, I learned how to set up a working environment that's extremely flexible so you can recover, no matter what happens."

As he mentors an undergraduate WPI student now, Heinen says he's glad to see that the university "continues to teach the kinds of skills that are necessary in today's quickly shifting business environment. I can see this student discovering, as she does her IQP and MQP, that no matter how organized and technically skilled you are, ideas always take longer to realize than you think they will. This student will enter the job market with that understanding. It's one element that makes the WPI experience so rewarding."

"For a start-up to be successful, you need a unique idea, a strong team, and a ready market. When these stars align, there's a powerful feeling."

Greg Hopkins '69 started and ran high-tech companies for 20 years before trading in his laptop for a pair of oars.

The entrepreneur launched two businesses during the 1980s, and a third in 1990. He founded UB Networks and ran its engineering operations—the networking equipment provider went public in 1984, was later bought by Tandem Computer, then by Compaq Computer, and finally became part of Hewlett-Packard. His Amber Wave Systems sold successfully to U.S. Robotics and was then purchased by 3Com. Windata, which Hopkins founded in 1990, built wireless local networks and participated in creating the IEEE 802.11 wireless standards.

"Those early days of local area networks, switching, and routing were heady times," says Hopkins. "Our products became the plumbing for today's wired and wireless networks."

But don't take his nostalgia for a longing to be back in the technological fray. "I've had enough of running start-ups and dealing with the venture capital community," he says.

To capitalize on a long-standing love of boat building, Hopkins started Nextwave Boat Company in Portsmouth, N.H., in 2001. At first, he made one-offs for customers—kayaks, canoes, motorized runabouts, electric boats. "Basically, I was willing to build any boat a customer asked for," he says.

Then he discovered the Piscataqua Wherry, a 16-foot rowboat specifically designed to navigate the tidal waters of Portsmouth. "It's an amazing boat," says Hopkins, whose research tells him it first appeared in the mid-1800s. "This rowboat used to be the taxicab for the Piscataqua [pronounced pis-CAT-a-kwa] River. It's indigenous to this area. People get interested in it because of that."

Soon Hopkins had set up his shop especially for building the Piscataqua Wherry—the set-up includes templates for every part of the boat and a set of permanent molds to plank the hull.

Now that his workshop stands ready, Hopkins enjoys customizing the Wherry for clients. "One customer brought wood from an apple tree that had been on his grandmother's property," he says. "I used it to make inlays in the fore and aft decks."

Although he doesn't miss the pressure of high-tech start-ups, Hopkins still does plenty of networking, enthusiastically spreading the lore associated with the Piscataqua Wherry. He has pored over trial records of the notorious Smuttynose murderer—named for the New Hampshire island on which the crime took place in 1873—and has concluded that the

"With boat building, I can see what I've accomplished at the end of every day. It's very satisfying."

Piscataqua Wherry may well have been the craft stolen by the perpetrator on the fateful day. On his website, he invites the curious to stop in and hear the whole story.

To further promote Nextwave, Hopkins plans to borrow one of the original Piscataqua Wherries from the Kittery [Maine] Naval Museum. "I'd like to show an original next to one of mine at the first Portsmouth Boat Show," he says.

As he rolls up his sleeves to build more rowboats, Hopkins finds the skills he gained in college just as useful as when he made routers. "WPI made me comfortable trying new things," he says. Little wonder, then, that his latest venture is faring well—Nextwave has sold four of the rowboat reproductions in the last nine months.

Looking back over his varied career, Hopkins sees that his current course suits him. "When we were starting companies, we thought we were going to solve everybody's problems, and act as the conduit for everyone getting onto the Internet. That kind of goal can take a long time to realize," he says. "With boat building, I can see what I've accomplished at the end of every day. It's very satisfying." ■

Where Angels Dare to Invest

Mitchell Sanders '88(MS), '92(PhD), sees enormous entrepreneurial potential in his hometown of Worcester. And he ought to know about the odds of making it here. Sanders is executive vice president of Worcester-based ECI Biotech, a protein-sensor company he founded in 1998. He quickly secured $15 million for ECI in equity, corporate development funding, and Small Business Innovation Research (SBIR) grants. Most recently, ECI received an $800,000 low-interest loan from MassDevelopment Finance Agency to open a manufacturing facility.

"Worcester is being revitalized," says Sanders. "Our cultural, business, and educational infrastructure looks exciting. I've wanted to help build new businesses here through investing, but who has time to review business plans every day?"

Sanders knew how he wanted to answer that question—starting an angel investment group. And he knew where he could find colleagues to assist him—WPI. Sanders maintains close ties with the university: he serves as vice chair of the Venture Forum, holds dual assistant research professorships in WPI's Bioengineering Institute and Biology and Biotechnology Department, and serves on the board of the Collaborative for Entrepreneurship and Innovation (CEI).

The WPI Venture Forum Executive Board had also "identified the lack of gap funding, which angels typically provide, as an impediment to start-ups in central Massachusetts," notes Mac Banks, head of the Department of Management, professor of entrepreneurship and strategy, and CEI director. After Sanders became a member of the board in 2005, he began organizing the Boynton Angels (BA) with over a dozen WPI alumni and faculty members, including Gina Betti, CEI associate director, Chick Kasouf, associate professor of marketing and entrepreneurship, Steve Rubin '74, entrepreneur and member of the WPI Board, Amar Kapur '65, past president of the Venture Forum, and Jerry Schaufeld, visiting professor of entrepreneurship.

BA launched in November 2006 and quickly attracted 17 members. Aside from its WPI makeup, says Sanders, members include alumni and faculty from Clark University and the University of Massachusetts Lowell, and executives from industries including energy, manufacturing, biotech, consumer products, telecommunications, and software.

"Many of our members live or do business in Worcester," he notes. "Others simply enjoy investing and saw the opportunity for a whole new array of deals they may never have heard about otherwise." According to Sanders, two-thirds of the BA members have invested as individual angels in over 25 start-ups. More than 80 percent have been founders, CEOs, or presidents of companies, and most have served on boards of directors.

Mitchell Sanders, left, with Eric Overström, head of WPI's Biology and Biotechnology Department.

"I tell potential members this is a great opportunity to invest with a strong group of sophisticated individuals," Sanders says. "With the Boynton Angels, you'll get better terms than if you go it alone, and the group is able to pursue vigorous due diligence, so you're not just *hoping* for the best when you invest."

With plans to focus investments in seed- and expansion-stage companies, the BA have ramped up quickly. Their screening committee sifted through 200 business plans and by January had chosen three entrepreneurs to present to the larger group. Among these hopefuls were software developers in the medical and real estate industries and a medical device maker. Two of these plans have been chosen for the due diligence stage. The BA will make their first investment this year.

"Unlike venture capital firms, the Boynton Angels can come in at earlier stages of investment," Sanders says. "We can fill that gap between a start-up's influx of funds from grants like those given through the SBIR, and the more formal VC."

A flexible investment group like the BA can prevent the "analysis paralysis" that often happens in the investment industry. "When we see great opportunities with sound management teams, we can get them moving. That's what I'm excited about," Sanders says. "I think the Boynton Angels are going to be the ignition switch for investment in this town."

—*EM*

Beyond 'Eureka!'

By Kate Evans-Correia

Sterilray, a new type of ultraviolet lamp developed by Ed Neister, could revolutionize the way people disinfect surfaces.

Jean Vanlancourt

Brandishing WPI's legacy of innovation and entrepreneurial spirit, Edward Neister '65 and Timothy McGreal '04 (MS) have proven that with determination, passion, and hard work you can see a great idea to fruition. Both have formed their own companies and invented products that could ultimately save lives. On the other end of the invention spectrum is Michael Feely '97, who is responsible for reviewing many of the 400,000 patent applications filed each year in the United States.

Ed Neister's invention looks like a prop from the 1984 movie *Ghost Busters*. But instead of trapping pesky ghosts, Neister's gadget zaps something real and much more threatening—germs.

His GermBuster Sanitation Wand, which uses Sterilray, a new type of ultraviolet lamp developed by Neister, could revolutionize the way people disinfect surfaces. By killing stubborn bacteria and viruses instantly, it could prove invaluable to health care facilities, food processing centers, germ testing laboratories, and hospitality centers, including cruise ships.

Consider this: A typical surface can have a million CFUs (coliform units) of bacteria per square centimeter, but a typical surface cleaner kills only a small percentage of those bacteria. It can take as little as 10 viral units of a norovirus to make a person sick. "What we're saying is, there's no better way to disinfect a surface than to use this far UV light," Neister explains.

After graduating from WPI in 1965 with a BS in physics, Neister went on to become one of the earliest developers of products using laser technology. He has started six companies, including his current enterprise, Healthy Environment Innovations, in New Durham, N.H., and has invented several products, including a tattoo removal laser. His latest idea has turned into the GermBuster.

Neister chose to attend WPI because he "wanted a school where a student was not just a theorist but an experimentalist." It was important for him to be able to grasp "the physics of nature, not just the calculations."

When he began his doctoral studies at Brandeis, the potential of laser technology (still in its infancy) was too tempting for Neister's entrepreneurial side. "It wasn't long before I realized I didn't want to be a nuclear physicist," he admits. "I said, 'It's new technology and I'm there.' I took a leave of absence [from Brandeis] and never went back."

He eventually earned his MS in physics from Northeastern University, while continuing to work at AVCO and later at Honeywell in laser research. Yet, as exciting as the research was, Neister became disillusioned with the field's lack of job security. "In 1970 I said, 'Enough!' and started my own company."

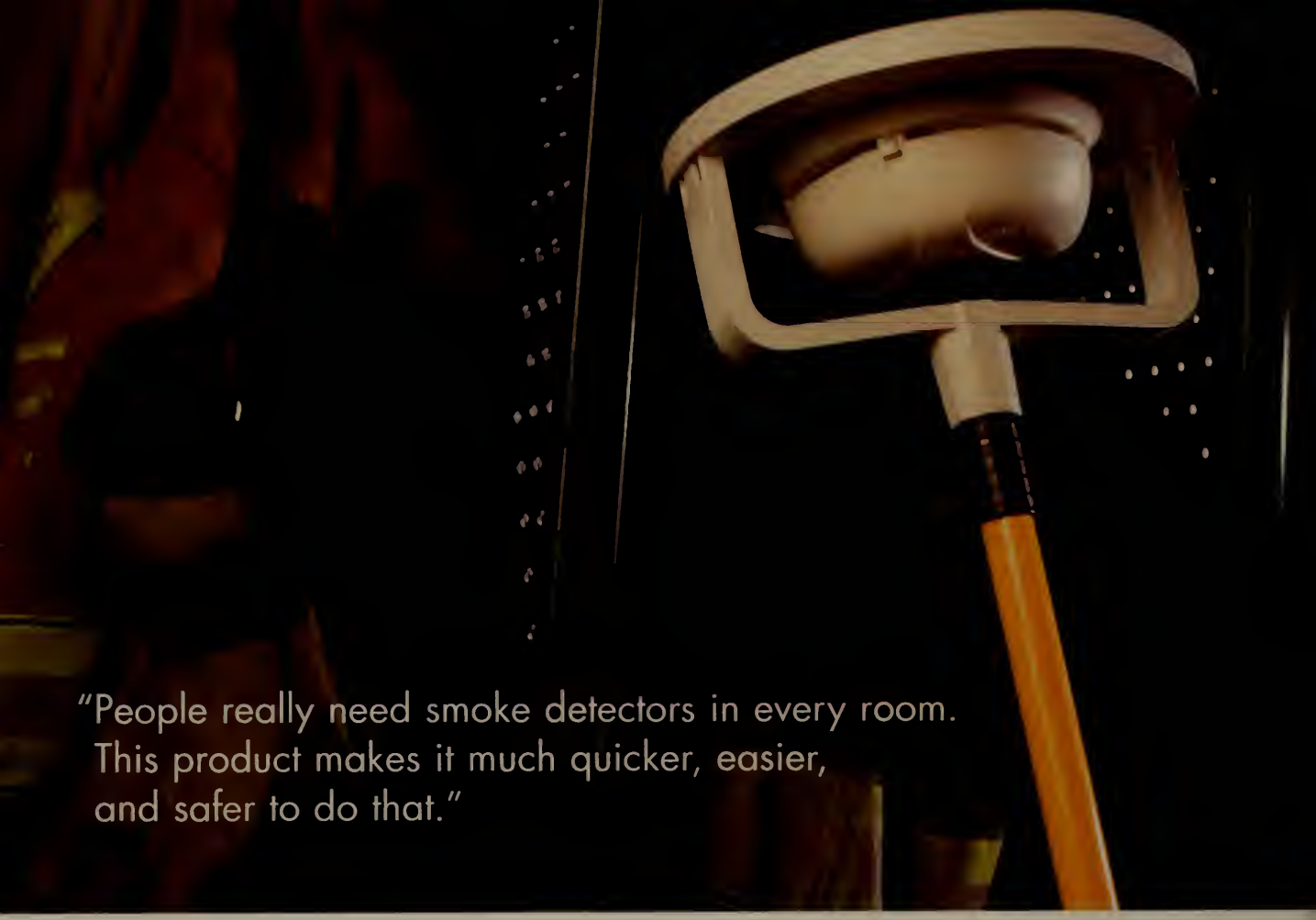
Several years (and companies) later, Neister began exploring wastewater treatment using UV rays and looking for ways to apply the same process to kill surface bacteria.

Used commonly in the treatment of wastewater, rays in the UVC, or "germicidal" band, cause base pairs in the DNA molecule to bond tightly, rendering the molecule unable to replicate and microorganisms unable to reproduce. But under certain circumstances, light with longer wavelengths can weaken the base pair bonds, enabling the organisms to start reproducing again. Neister discovered that light in the far UV spectrum, with a much stronger photon energy than light from standard UV lamps, killed significantly more pathogens and actually damaged other parts of the DNA molecule. It virtually destroys all types of pathogens in less than one second. Hence, the birth of Sterilray.

"We made a simple lamp at different wavelengths, tested it at the University of New Hampshire, and saw improvement [in the destruction of a phage virus]," says Neister. At that point, he knew he had a "significant method for killing viruses on a surface."

Though it has taken almost five years to develop fully, there's still more testing to be done. Neister is looking at the possibility of doing bacterial and virus testing at WPI's new Life Sciences and Bioengineering Center at Gateway Park, part of an 11-acre life sciences and bioengineering district the university is developing with the city of Worcester. He says that a partnership with WPI is likely sometime within the next year.

Neister is excited at the prospect of working with WPI again. After all, he notes, it was a great foundation for his career as scientist, inventor, and entrepreneur. "The most important thing is WPI's ability to teach students to think for themselves," he says. "Doing all those experiments gave you a sense that you have a bunch of doors that you must figure out how to open. You won't get that out of books. You have to think your way through problems."



Fire Inspector Gadget

It was a class video that showed fire racing through a home that led Tim McGreal '04 (MS) to develop what promises to be one of the most simple, but useful, fire safety devices available to consumers—a product that makes it possible to install and remove smoke alarms without the use of a ladder.

"It's a simple way to access a smoke alarm from the ground," McGreal says of AlarmArm, a product that uses an extension pole and his patented magnetic mounting system. But he's quick to point out that making it practical was the challenge. "Having an idea is much easier than developing a commercially viable product."

As for ideas, McGreal has a million of them. Even as a little kid he was always thinking of ways to make things work better. This time, his idea stemmed from needing additional smoke alarms in his home.

"One of the rooms had a 19-foot ceiling. I looked up and thought, 'I need a smoke alarm there but I don't want to climb a 16-foot ladder,'" says McGreal, who earned his degree in fire protection engineering through WPI's Advanced Distance Learning Network. "The mock-up was done in about five minutes, but it took four years to turn it into a practical, commercially viable product."

McGreal originally designed AlarmArm using adhesive. But it just didn't stick. Literally. So he reworked several models and found that magnets were the best way to go. In 2005, AlarmArm won NASA's merit award for its "Entering the Future" contest, he modestly points out. But at the end of the day, it's not about awards; it's about saving lives. "People really need smoke detectors in every room," he says. "This product makes it much quicker, easier, and safer to do that."

The AlarmArm, which McGreal will be distributing through his company, SafetyWise, isn't his first patented product, nor is it likely to be his last. In December 2000 he received a patent for "transmission apparatus and method," which is a 120-speed transmission for an agricultural planter, and he has a patent pending for a "torque-limiting threaded coupler," which allows threaded plumbing and fastener components to be precisely assembled without guesswork, luck, or measuring instruments, thus preventing water damage.

While working as an auto mechanic in the mid-'80s, McGreal watched his brother, Michael McGreal '91, launch a successful career in fire protection engineering, and thought he could do the same. Now a full-time forensic engineer for Rimkus Consulting Group in Westmont, Ill., Tim McGreal estimates he has spent nearly 6,000 hours working on the AlarmArm. He received the patent for the device in February

2005, but much of his time is now spent on finishing the design and working on production tooling. Contracting production to Adams Magnetic Products Co., he expects to start selling the device this summer—initially through catalogs, the AlarmArm website, and the Home Shopping Network/QVC. Shortly afterward, it will be sold at retail outlets, such as Home Depot, Lowe's, Wal-Mart, and Target.

Although McGreal hadn't stepped foot on the WPI campus until after graduating, he credits his experience with WPI's distance learning program for the drive and patience to see an idea through to fruition. All distance-based fire protection engineering programs are taught on campus in real time and then streamed on the Internet. Each course has additional web-based content and a suite of collaboration tools that help foster interaction among faculty and students.

"One thing that was different [from a traditional college experience] was that the courses were conducive to independent work," he says. And even though his professors were a thousand miles away, it didn't mean he could slack off when they weren't looking. "I remember a test that took 20-plus hours to finish over one weekend. It gave me a taste of what the real world is like—what it's like to be an inventor, going nonstop." ■

As a patent examiner specializing in epoxy composition (adhesives), Mike Feely '97 admits he doesn't have a very sexy job. But, he asserts, it's a great job.

"People say to me, 'You must do some really cool stuff.' And I say, 'Yeah, these resins are great.'"

Though he jokes about his day-to-day work at the U.S. Patent and Trademark Office (USPTO), the fact is, Feely is about as close to innovation as one can get and he takes his part in the invention process seriously.

While he may not be pursuing the career path he anticipated, Feely says he is well suited for the job, thanks to his education and previous work experience as an engineer using materials and processes similar to the ones he examines in patent applications. "WPI provided me with an excellent foundation of analytical skills and technical knowledge, along with a very important taste of the real world," he says. "Project work was an excellent preparation for the complexities of industry and work life."

The USPTO has about 5,000 patent examiners (most of them with specialized degrees in engineering) reviewing the nearly 450,000 patent applications the office receives yearly. Of those, about 180,000 patents are issued each year, but that still leaves a backlog of 800,000 unexamined applications. Patent examiners review patent applications to determine their validity, value, and novelty. They compare the subject matter of an application to a large body of technological information to determine whether or not a patent can be granted.

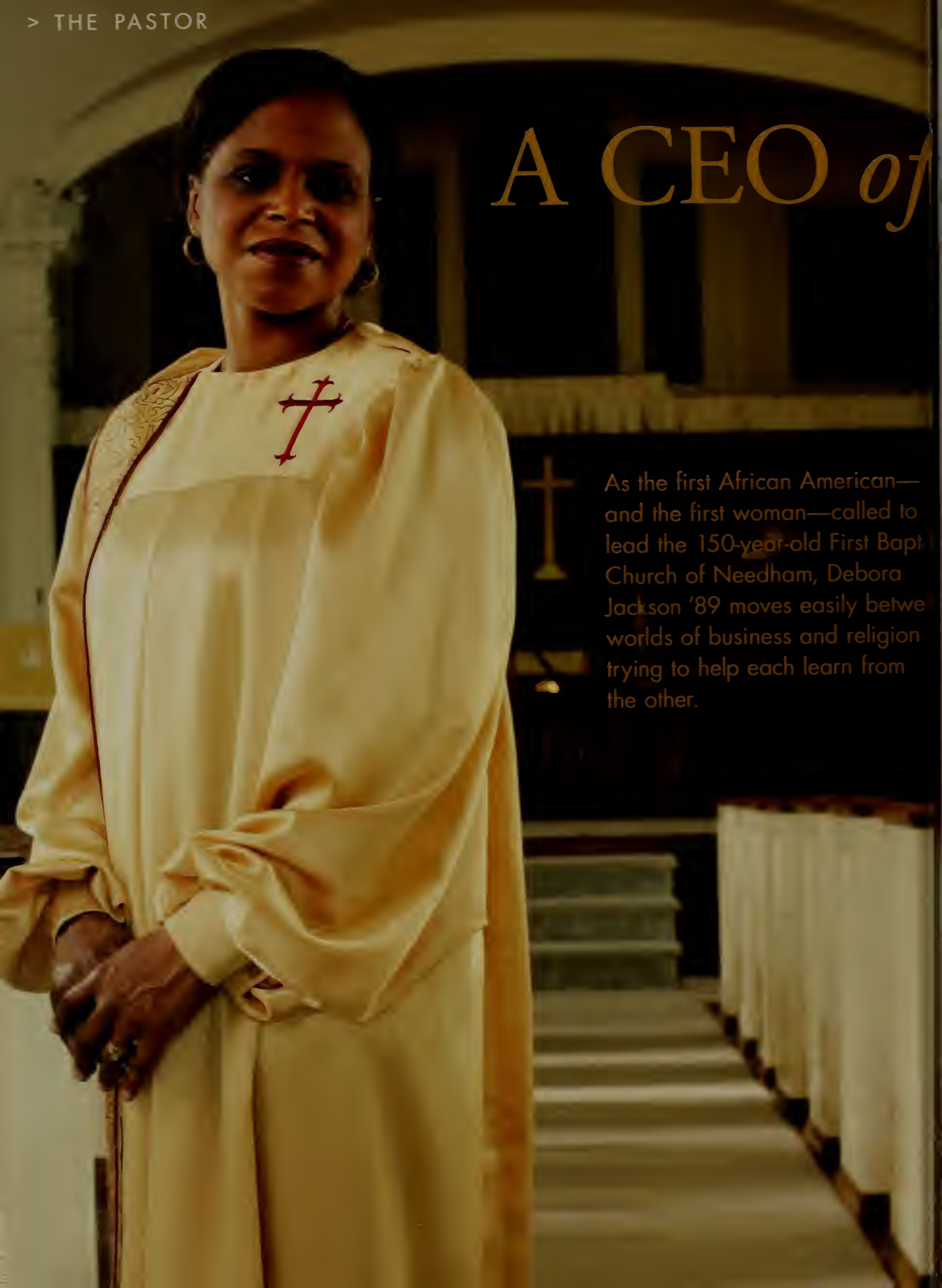
"You get a feel for what the invention is and the scope of what they're claiming," says Feely, who has been with the USPTO since 2000. His job requires a good deal of time management, as does his expertise as a chemical engineer. "There are numerous deadlines so you have to keep on top of your docket. Do a thorough job or it will come back to haunt you."

Socially, it's a far cry from the group projects that were such an important part of his experience at WPI. "Here, it's much more of an individual work environment," which, he says, took some adjustment.

After graduating with a BS in chemical engineering, Feely worked as an engineer for small local companies. But a few years into his second job, he decided to try something and someplace different. He had his pick of locations, but chose Washington, D.C., where he'd spent part of his junior year working on his IQP.

In fact, the USPTO is gaining a reputation as being one of the best places to work in Washington. *Business Week* recently named the USPTO one of the top places to launch a career. Over the past three years, it has hired 2,200 new patent examiners and plans to hire an additional 1,200 each year for the next five years.

"I didn't know what to expect," he says. "I knew I was taking a chance. But everything turned out great. It was the change of pace I was looking for."



A CEO of

As the first African American—and the first woman—called to lead the 150-year-old First Bapt Church of Needham, Debora Jackson '89 moves easily betwe worlds of business and religion trying to help each learn from the other.

he Spirit

By Joan Killough-Miller

The steeple of the First Baptist Church is the tallest structure in the town of Needham, Mass. Some might look to it as a symbol of pride or inspiration—but to the Reverend Debora Jackson, it is a source of revenue. When she first came on board as senior pastor in 2004, the church was reaping the benefits of cellular transmitting antennas concealed in the tower. Concerned that consolidation in the telecom industry might depreciate that asset, Jackson did some research. When some brokers came calling with a proposal to purchase the access leases, she had already run the numbers.

Jackson still laughs when she recalls their astonishment. "You could just see them looking at each other, saying 'I thought she was the minister!' They thought I was just there to offer the so-called 'sandwich prayers' at the opening and closing of the meeting." She shot down their initial offer and came away with a lump-sum payment more in line with her analysis of market value.

The unflinching negotiations hardly came as a surprise to the church members. They had already seen Jackson in action when they first invited her to be their spiritual leader. She immediately renegotiated her compensation package, line by line—and that was while she was still a seminary student. Her parishioners knew full well that she came to the table with an undergraduate business degree from Indiana University, and two master's degrees from WPI, in engineering management and manufacturing engineering.

At the heart of Jackson's ministry and her consulting work is a surprising assertion: Like businesses, churches must be concerned with the bottom line and realize a return for their investments. Like churches, businesses can't thrive unless they look out for their employees' spiritual needs. Spiritual, she is quick to point out, doesn't have to mean religious.

Jackson's first calling was sudden and deep. "I'm going to be a computer programmer," she declared at age 12, on a sixth-grade field trip. She began her career in software development and soon moved into management. She was leading the start-up of an e-commerce platform for utilities when Enron crashed, taking the energy industry with it. In the aftermath, she was forced to lay off half her staff, and then found herself jobless when her company folded.

Her religious vocation grew out of a lifetime of church involvement. "It was in December of 1999 that I acknowledged my calling. I felt like God had said to me, 'This is where I want you to go.' It was an overwhelming, troubling, frightening sense. I just thought, 'I can't do that!'" But in the fall of 2000, after completing her second master's program at WPI, she entered seminary at Andover Newton Theological School. As she was serving an internship at FBC, the church's senior pastor retired, and Jackson was asked to succeed him.

While her church reaps the benefits of her business acumen, Jackson also helps businesses leverage the power of spiritual engagement. "I know that gets into touchy language," she says. "It doesn't mean I'm proselytizing. It's about what drives you, what your passions are, and how those passions get manifested in your everyday life." She is a partner in Executive Soul, a group consultancy that helps organizations and their leaders connect to their spiritual core. Before joining FBC, she had her own agency, The Renewal Group, which specializes in revitalizing workers and organizations after the demoralizing effects of downsizing.

Disengagement can also be an issue for churches. "The engagement is about being on fire for God," she says. "If you are, you recognize the commitment to build the ministry, share the Gospel, feed the hungry, and clothe the naked. In the Northeast, particularly, church is seen as a nice-to-do, nice-to-have kind of activity. It's always at the periphery. You have people who only want to give an hour, on Sunday, and start to squirm when it takes a little more than that. And it always does—when I'm preaching!" she adds with a laugh.

"I use my WPI education every day here, from launching a marketing campaign, to active recruiting, to meeting with business leaders," she says. "It goes back to process, organizational development, and capacity planning—the courses I took at WPI. The church is an enterprise. How do I, as CEO, structure it so it can reach its goals and objectives?

"I know that some people don't like this comparison, because it seems too secular. Our objectives are not dollar driven—but they still have to be measurable and tangible," she continues. "The reality is, so many of our churches are in trouble. If you don't have a broader hand, you may not be able to achieve your desires." During her tenure at FBC, attendance at worship services has doubled.

In the larger Needham community, Jackson's energy galvanizes a wider audience. Her outreach to schools and civic organizations sometimes involves breaking down barriers. "People put clergy in a box," she says. "They think I'm going to pull out a Bible and start telling them how Jesus needs to be in their lives, or something like that. But I'm thinking about strategic alliances and partnerships."

Whether it's bringing the town together to help Hurricane Katrina victims in Mississippi, or shedding her clerical robes for blue jeans to sing rhythm and blues on teen band night, Debora Jackson knows how to win over her target audience and get results. "What saps my energy is mediocrity," she says. "There's always a higher peak, and I want to climb it. My family is supportive of that, because they know that I function best when I am challenged and stretched. I can't imagine it any other way." ■

Armed with a BS in civil engineering, Jennifer Lutz '94 was headed toward a career in environmental engineering. That is, until a llama crossed her path. Literally.

Breeding Business on Fertile Ground

By Joanne Silver

Only hours after giving birth, Penelope is looking a bit weary as she tends to her newborn, Ajax. Jennifer Lutz greets her sympathetically, patting the recently shorn mother with a reassuring gesture before taking the fleecy white son out for a moment to be weighed. Lutz knows firsthand how difficult labor can be—after all, she has given birth to two sons of her own. She finds that her experience as a mother comes in handy. "Being in labor, having a baby—I can really identify with the girls," she says.

And there are plenty of "girls" grateful for the support. On a sunny May afternoon, 170 are scattered about the barn, the outdoor pens, and the nearby pastures. Some are only days or hours away from giving birth. Others have just had a romp in the hay—actually, shredded recycled cardboard—with some of the 100 male residents of the wooden barn just down the hill.

All are alpacas—not so much a herd as a collection of individual creatures. Each has a name, a personality, a story. For Lutz, her husband, Ian, and their sons, Sam and Max, the fuzzy creatures are part of a larger family at Cas-Cad-Nac Farm in Perkinsville, Vt.

This agrarian setting on the slopes of Mount Ascutney is just about the last place Lutz imagined herself ending up when she was a student at WPI. Having grown up on a farm in Woodstock, Vt., Lutz explains, "I ran away from the farm. That's why I went into engineering." She never did 4H as a child and never showed animals. Civil engineering was going to be her life's work, not the care and feeding of a bunch of barnyard inhabitants.

The alumna was well on her way to her chosen career when her MQP took her to Ecuador. By then she and Ian, a high school classmate, had been dating for several years. At a study site a drive away from Guayaquil, Lutz and the other members of her group were investigating gold mining contamination. As she journeyed back and forth to places made hazardous by mercury and cyanide, she would catch glimpses of llamas. She fell in love with the quizzical-looking animals and joked with Ian about getting a llama for the backyard.

"I wear many hats in a day. I never do just one thing. This morning I played midwife to Penelope. I also play accountant, business person, salesperson, veterinary technician."

After graduating in 1994, Lutz quickly found a position as an environmental engineer with a firm in Lebanon, N.H., working on remediation and tank removal. She and Ian married a year later. Shortly thereafter, at an agricultural fair in Killington, the camelid family reared its adorable head once again. This time the beasts were alpacas—smaller cousins to the llamas that Lutz had seen in Ecuador. She did her homework. By the time she and Ian bought their first five animals in 1997, they were ready—or so they thought.

They soon discovered that farm life means always being prepared for surprises. "I wear many hats in a day. I never do just one thing," Lutz says. "I could wake up and find two babies. Or I could do paperwork in the office. This morning I played midwife to Penelope. I also play accountant, businessperson, salesperson, veterinary technician. We do a lot of our own veterinary work." In her medical room—stocked with Vaseline, Pepto-Bismol, thermometers, rubbing alcohol, latex gloves, and syringes—Lutz reaches for a splint she created to fix the crooked leg of one brown twin born recently. She fashioned it out of a spoon, some PVC pipe, cotton, and duct tape. The materials were unconventional, but the splint did the trick.

If her career seems far removed from her WPI course work, Lutz says she still uses skills she developed back then. "I learned about how to think and not think linearly, to think in a lot of different directions," she says of her college training. "I learned to multitask."

Inside the barns, Lutz has tapped into her engineering skills to design a flexible system of partitions that responds to the changing needs of the herd. Expectant mothers are housed together. A newborn like Ajax will spend a day in a bonding pen with its mother, listening to her buzzes and clucks, so that the two can get to know one another before entering the bustle of alpaca society.

Outdoors, Lutz strings fences and opens gates to create a rotating series of pastures for the animals. In the winter months, when the alpacas tend to be indoors, and babies aren't being born, she haunts an upstairs room filled with puffy garbage bags. These contain the treasure for which alpacas are rightly famous: a tawny rainbow of fleece so soft and luxurious it makes wool feel like sandpaper. She and her husband shear all the animals during the springtime, leaving them with coats that resemble furry corduroy. In her off hours and off months, Lutz grades the fleece, which might end up in a several-thousand-dollar Italian suit or rug or blanket, depending on its fineness.

Cas-Cad-Nac Farm, whose name means Ascutney in the Abenaki Indian language, has won many prizes for its fleece and its animals in shows across the country, and the Lutzes sell both from their Vermont home. Jennifer Lutz's office is brimming with purple ribbons, as well as trophies featuring metal sculptures of curly-haired alpacas. A road trip to shows—such as the Nationals held in Louisville, Ky., in May—is a production involving a truck and a trailer that is a work of art in itself. A larger-than-life-size image of alpacas—Reality, Evangeline, Lustroso, Buttercup, and a young Sexy Sadie (so named because that was the song playing when she was born)—along with Sam Lutz as a toddler, adorns the exterior of the vehicle. The vinyl picture, produced by a Utah company that usually wraps buses, not livestock trailers, captures the essence of the passengers riding inside. On the highways of America, this might be the first encounter drivers have had with alpacas. But as Lutz knows well, these creatures are not easily forgotten. ■

AlumniConnections

Bill Krein '62 is owner of CREDO, LLC, in Woodstock, Vt. He is a former entrepreneur-in-residence at WPI and currently serves as an adjunct faculty member for the management department and the corporate and professional education division. He begins his term of office at an exciting time, ready to usher in a new era of alumni activism under a newly restructured organization.

Can you comment on the importance of the Alumni Association? Why get involved?

When you graduate from WPI, not only do you go into the world with an education, you also enter with a reputation. In the professional world, you are received with all the approbation earned by the WPI alumni who came before you and have been successful in their careers. Now, because you enjoyed that, it follows that you have an obligation to contribute to that legacy. By that I mean it's important to roll up your sleeves and engage yourself in WPI, so that you further its reputation for the people who come after you. It's not just about coming back for Homecoming and Reunion. It's a self-perpetuating cycle. Those word-of-mouth success stories about WPI graduates will help other alumni in their careers. And the more alumni hear about those successes—in *Transformations*, for example—the more they appreciate WPI, and the more inclined they are to support the university so it can have that kind of impact on the lives of others.

This is a time of great change for the Alumni Association. How will you build on that progress?

My predecessor, Morgan Rees '61, led the design work on the new structure for the alumni organization and initiated the implementation. Now it's time to get it working and demonstrate its effectiveness. As president-elect, Joyce Kline '87 is chairing a group that will define how the Alumni Association will be constituted as the central presence for all alumni programs and interest groups. In addition, members of the association's Board of Directors are working on revisions to the bylaws. Certainly, we want to keep up the momentum that the Alumni Office has generated—drawing together alumni all over the country—with its dynamic schedule of regional events and town meetings. We also want to capitalize on the energy created by the launch of the new AlumniConnect online community, with interactive features for alumni to remain engaged with each other and with WPI.

What's important to know about the new Alumni Association?

Our goal is to strengthen the relationship between the Association and the WPI administration. It's more than just a new organizational chart; it's a new way of thinking about alumni involvement. We're looking at how and where we can contribute on a more strategic level. With increased Office of Alumni Relations staffing to handle operations, the board is freed up to function in more of an advisory capacity, focusing on strategy and direction.

We're also responding to the need for broader representation. Instead of just a few key committee chairs doing all the work, we'll have 18 to 20 members-at-large, each with several areas of interest. Technology allows us to cut down on the frequent on-campus meetings. That opens it up to alumni who live outside the local area or those who may not have much time to attend meetings.

Career development has been a priority for you, given your involvement with the Alumni Association. What can alumni expect in that area?

Over the last four years I've spent time reinforcing the concept that WPI must support its graduates throughout their careers. I'm excited by the fact that we have a new Career Development Center director who understands lifelong career involvement, and a firm commitment of resources from the administration. Right now we are engaged in recruiting a dedicated staff member who is skilled in assisting alumni at all stages of their working lives. You'll also notice expanded online resources, including a Career Services area as part of the new online community, and a link to job postings, accessible through *The Bridge*, WPI's monthly alumni enewsletter.

What's the best way to stay on top of all this?

Register at the new alumni site: alumniconnect.wpi.edu. If you need a password or other assistance, contact alumni-office@wpi.edu.

Reunion Weekend 2007

Even the rain couldn't dampen the mood during Reunion Weekend 2007, held June 7–10. Alumni from the classes of '42, '47, '52, '57, '62, '67, '72, '77, and '82 celebrated their respective reunions with receptions and banquets, and by reuniting with old friends. Activities and events during the weekend included the annual Reunion Parade, campus tours, and Alumni College sessions led by WPI faculty and administrators. President Dennis Berkey accepted generous class gifts, and select alumni were celebrated with distinguished awards. *View more photos at alumni.wpi.edu.*

Class Notes

Staying Connected with Old Friends

Material for Class Notes comes from newspaper and magazine clippings, press releases, and information supplied by alumni. Due to production schedules, some notes may be out of date at publication, but may be updated in future issues. Please allow up to 6 months for your news to appear in print. Submit your Class Note at www.wpi.edu/+Transformations or alumni-editor@wpi.edu. You may fax it to 508-831-5820, or mail it to Alumni Editor, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280.

1930s

Morton Fine '37 of Rocky Hill, Conn., discussed his career in forensic engineering with his local newspaper, *Rocky Hill Life*. In 1950, he founded Morton S. Fine Associates, which grew to 60 employees. He also served as executive director of the national Council of Engineering Examiners. He now maintains a one-man practice, with an office at Inwood Business Park, in Rocky Hill.

1940s

Noel Maleady '40 lives in Ladera Ranch, Calif. The *Ladera Post* ran a front page story on his many volunteer activities. He works at the local animal shelter, makes pastor visits at Mission Hospital, helps with the summer arts festival, and is a member of several other organizations. He was also instrumental in getting bus service for his area.

Ralph Smith '43 was one of several sharp-eyed readers who noticed an error in the previous issue of *Transformations*, which reversed the order of buildings in a 1933 photo of the WPI Quad. He shared memories of living in Sanford Riley, (a "fairly new" dorm at the time), and working as a monitor in the front lobby, where the dorm's single telephone was located. "I would sit at the desk from 7 to 11 p.m., with duty to answer the phone, go find the student (no elevators), try to control discipline, and lock the doors at 11, when all the students were supposed to be in. How times have changed!"

A "Legend for Lunch" tribute to **Richard Whitcomb '43** was held May 17, 2007, by the American Institute of Aeronautics and Astronautics, to commemorate his contributions to the development of powered flight. A portrait of Whitcomb has been commissioned to hang in the First Flight Society's museum, and a fly-over in his honor is being planned.

Kim Woodbury '44 used his WPI education to poke fun at Boston's Big Dig woes. In a letter to *Telegram & Gazette* columnist Sid McKeen, he proposed a simple solution, which was shared with readers in McKeen's popular column, "Wry and Ginger." Oatmeal, Woodbury suggests, once dried onto cereal bowls, sticks permanently, is insoluble in water, and costs a lot less than the ineffective materials that were used. "When I went to school," Woodbury wrote, "a bolt was always fastened with a nut." He also suggests that his WPI classmates might have known better than to have designed an air duct ceiling with three-ton cement panels.

Andrew Goettmen '47 and his wife, Dorothy, moved to Benson, N.C.

Dan Sheingold '48 is editor of *Analog Dialogue*, which recently celebrated its 40th year of continuous publication in print and its eighth year online, at analog.com/analog-dialogue. Dan, an IEEE fellow, has been the magazine's editor since 1969.

Albert Soloway '48, author of *Failed Grade—the Corporatization and Decline of Higher Education*, was profiled in the Columbus, Ohio, *New Standard*. A former professor and dean, he is retired from Ohio State University.

1950s

After retiring from a career in marketing and consulting, which included 29 years with Monsanto, **Dick Davis '51** has fulfilled his dream of entering the healthcare profession. At age 65 he graduated magna cum laude from Logan College of Chiropractic and has been in practice in St. Louis for 13 years. Dick plans to retire to a rural farm setting in the next year or two. His website, chiropractichealthcare.net, includes articles on various aspects of the profession.

At his 75th birthday celebration at The Boynton, **Don Campbell '53** received his very own WPI goat from classmate **Jack Flynn**, as well as a certificate from WPI's "Growing Older Gracefully" department. "We all feel so fortunate to be able to celebrate together," Don says, "since my fading recollection of the 50th Reunion includes the reading of the list of Class of '53 members who didn't make it that far." Jack reports that the WPI goodies were the hit of the party.

Roy Stone '56 is retired from a career in computer programming and continues as a home-based consultant in Wilton, N.H. In a recent feature in the *Nashua Telegraph*, he shared memories from his 50 years in the computer industry and described the "electronic evolution" from vacuum tubes and punch cards to today's compact PCs.

1960s

After seven months in Liberia, **Richard Brewster '60** is now in Gambia, as part of a Mercy Ships medical mission team. He and his wife, Susan, have been volunteers since retirement.

Hank Allessio '61 was awarded a place in the Auto International Association's Hall of Fame at the AIA's Silver Anniversary Celebration in Las Vegas. Hank, a longtime member of the AIA board of directors and a former Person of the Year, is managing director of Walden Consultants Ltd.

The Passive Solar House by **James Kachadorian '61** is now in its second edition, with a CD-ROM full of plans, worksheets, and formulas to help owners design energy-efficient homes.

Jesse Erlich '62, formerly a partner at Perkins Smith & Cohen LLP and a member of the firm's Science & Technology Group, has become a partner at Burns & Levinson LLP of Boston, as result of the attorneys of the former firm joining the latter. He recently presented a workshop on intellectual property and patents for WPI's Office of Research Administration.

Fred Molinari '63 shared his wisdom with WPI students at the September 2006 Dinner with Entrepreneurs held at Higgins House. He is president of Data Translation in Marlborough, Mass.

Jim Fee '65 presented an e-workshop on turning breakthrough ideas into demonstrable products this spring, through WPI's Collaborative for Entrepreneurship and Innovation.

John Lauterbach '66 runs Lauterbach & Associates, an independent company specializing in the chemistry and toxicology of tobacco products and related materials, in Macon, Ga. He also serves as a consultant to the American Chemical Society's Committee on Economic and Professional Affairs and as program chair for its Division of Small Chemical Businesses. He has made presentations to the society, and to the Tobacco Science Research Conference and the CORESTA Congress in Paris.

Richard Liebich '66 received a 2006 Community Laureate Award from the University at Albany Foundation.

Bob Demers '68 caught this 35-pound Ayakulik King Salmon in Kodiak, Alaska, on his annual fishing expedition. He has plans with several other WPI alums for Silver Salmon fishing in August, at Unalakleet, an Eskimo village near the Arctic Circle. Bob is a clinical specialist in the Respiratory Care Dept. of Stanford University Medical Center.

Donald Scott '68 (PhD) published *The Electric Sky: A Challenge to the Myths of Modern Astronomy*. A lifelong amateur astronomer, he uses electric universe/plasma cosmology to dispute the existing Big Bang and "Gravity Only" paradigm of prevailing cosmology. He is a former professor of electrical engineering at the University of Massachusetts Amherst. Find out more at electric-cosmos.org.

Joel Cehn '69 recently returned from Kuwait, where he was involved in an environmental project. "Uranium ordnance served the U.S. military well in Gulf War I, but littered the country," he writes. "The Kuwaitis are cleaning it up with U.S. help. I'm finding the work personally satisfying."

End of an Era

A dynamic chapter of WPI's history concluded this summer with the retirement of university vice president **Stephen J. Hebert '66**. Devoting his entire career to his alma mater, Steve Hebert started as assistant alumni director in 1969 and later served as director of development, treasurer and secretary of the corporation, and vice president for administration. A listing of the many hats he's worn at WPI would barely scratch the surface. "Although it's hard to define exactly what it is you do, everyone agrees that we couldn't do it without you," read his 2006 citation for the William R. Grogan Award for Support of the Mission of WPI.

As SJH, he presided over the institution's financial well-being, guided the board of directors, and managed campus services for all who lived, studied, and worked at WPI. He was instrumental in making the Alumni Association an integral part of the university. He formed close bonds with alumni of all ages and helped them realize the importance of supporting their alma mater.

Steve Hebert leaves behind a very different campus from the one he attended. The visible developments include the Carol Hebert Garden, at Higgins House, in memory of his first wife; Reunion Plaza, made possible through his persistent work with the City of Worcester to have West Street closed to traffic; the Campus Center; and Gateway Park. Although he shouldered responsibility without fanfare, everyone who knows him knows he would shrug off taking the credit. Steve and his wife, Deb, stand out as loyal friends and supporters of WPI. His good humor, generosity, and humble, down-to-earth nature will be missed by all.

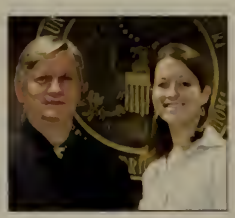
"I will not attempt to summarize all that Steve has accomplished, and all those members of the staff he has nurtured and supported, during the many chapters of WPI's development in which he has played key roles," President Dennis Berkey said. "Suffice it to say that his service has been characterized by a very strong loyalty to WPI, and to those entrusted with its leadership, and that his contributions will have lasting value in many ways for years to come."

Ed Mierzejewski '69 is director of the Center for Urban Transportation Research at the University of South Florida. The center's 100 employees serve as a resource for cities all over the United States, looking into everything from highway traffic patterns to public transit innovations. The *Tampa Tribune* featured some recent projects, which include remote mini-helicopters to monitor traffic and an "elevated people mover" in Miami.

Mahendra Patel '69 is a project manager for the MBTA, after 31 years with electric power utilities. A former vice president of ASME's Boston Section, he says the regional meetings held in Worcester were "like homecoming" for him. He and his wife are also involved in Asian Indian groups. "Currently I serve as president of the ethnic 'Patel' community in the New England area, helping promote its unique culture and heritage. I welcome correspondence from my good old friends from WPI."

1970s

Robert Byrne '71 and **Lorri Lind Caruso '73** were married on Oct. 21, 2006. They live in Warwick, R.I.



When U.S. Magistrate Judge **Paul Cleary '71** (Northern District of Oklahoma) hired an intern last summer, he didn't learn until after the fact of a WPI connection. Jessica John Bowman is the daughter of **Tom John '75** (MS) of St. Petersburg, Fla. Jessica received a chemical engineering degree from the University of Oklahoma and is now a law student at the University of Illinois.

Cutler Associates president **Frederic Mulligan '71** was appointed to the board of the Massachusetts Port Authority.

Bob Sinicrope '71 was the inaugural recipient of the John LaPorta Jazz Educator of the Year Award at the International Association for Jazz Education Conference. A former student of LaPorta's, Bob is founder and director of the jazz program at Milton Academy.

Maryann Bagdis Goebel '73 joined DHL Express, a division of Deutsche Post, last year as the division's global chief information officer. "I relocated to Cologne, Germany, in February 2007," she writes, "but have kept my condo in Fort Lauderdale. I spend most of my time on the road, visiting our five global regions and our parent company in Bonn."

Roger Lavallee '73 was recently elected to the board of directors of BEACON (Biomedical Engineering Alliance and Consortium), a nonprofit trade organization consisting of corporations and academic and medical institutions dedicated to the development of medical technology as an economic engine for the Hartford, Conn., region, and beyond. He is vice president and director of business development at Phoenix Asset Management.

Bruce '73 and **Allison Huse Nunn '73** reside on the South Shore of Nova Scotia, where Bruce is VP and resident manager of the Bowater Mersey Paper Company, and Allison volunteers at the Queen's Manor senior residence and at the SHAID Animal Shelter. Their oldest child, **Will Nunn '99**, was married in 2006. Their youngest, **April Nunn '04**, works as a medical physicist in Alaska, and their middle child, Heather (a Willamette U. graduate) lives in Seattle. "We are always interested in hearing from classmates and Nova Scotia is a great place to visit," they write.

Alden Bianchi '74 was named co-chair of the ERISA Committee of the Boston Bar Association's Tax Section.

James Briggs '74 retired from the federal government in 2006 and is now employed by the Delaware Valley Regional Planning Commission in Philadelphia.

Kara (Hogan) Buzanoski '74 was appointed public works director for the town of Northborough, Mass., which has been her employer since 1990 and her hometown since 1979.

Lou Ciercielli '74 and his wife, Lois, own Bellows House Bakery in Walpole, N.H.

Steve Dacri '74 performed recently at the Magic Castle in Hollywood.

Michael Hartnett '74, chairman, president, and CEO of RBC Bearings, was recently appointed to the Board of Governors of the University of New Haven.

Peter Thacher '74 works in the planning department of Saudi Armaco in Dhahran, Saudi Arabia. His wife, Sarah, works in the law department. Recently back from vacations in Russia and Austria, they invite friends to visit them in the Middle East.

Jon Anderson '75 was appointed by Vermont Gov. Jim Douglas to fill a vacancy in the Vermont House, which meets part time. A democrat, he represents the state's capital city of Montpelier. Jon runs Betsy's Bed and Breakfast with his wife and continues his law practice at Burak Anderson & Melloni, PLC.

Bob Fried '75 is now self-employed as a consultant to the discrete semiconductor industry, after 23 years with General Semiconductor. He and his wife, Meryl, live in Plainview, N.Y. They have two sons.

Larry Jones '75, former CEO and president of Activant Solutions was elected to the board of directors of StarTek Inc.

Gary LaLiberty '75 lost his wife, Deborah Jacobs-LaLiberty, last year. He lives in Grand Island, N.Y., and has two sons and a daughter.

Joseph Dzialo '76 is president of the Lee brand for VF Jeanswear LP.

After graduating from WPI, **Mark Johnson '76** earned a graduate degree from the University of Maine, and then worked his way across America with his family. He writes, "My career includes executive engineering, environmental, and management positions with water utilities in Connecticut, Illinois, and now in Southern California, where I serve as director of engineering for the Coachella Valley Water District. I estimate that about $1.2 billion of infrastructure was constructed under my direction." Mark holds PE registration in Connecticut and California.

Tom McAloon '76 and his wife of 22 years, Beverly, are currently residing in Male, Maldives. Tom has been the Red Cross water/sanitation delegate for Maldives since September 2006, managing the installation of small-bore sewer and ocean outfall systems for six islands damaged during the 2004 tsunami. Tom and Bev welcomed their first grandchild, Asher, into the world just before leaving for Maldives.

David Sawyer '76 (PhD) was presented with a framed certificate of appreciation by the Portsmouth, N.H., Amateur Radio Club, for teaching a sequence of introductory, mid-level, and advanced courses in communications theory and practice. He and his wife, Nancy, continue to enjoy hiking in the nearby White Mountains.

Robert Cundall '77 is deputy director of finance and operations for the Seattle Art

Museum. He was a finalist in the *Puget Sound Business Journal*'s 2007 CFO of the Year competition.

Paul Curdo '77 of Tucson helped coordinate a mini-reunion of ATO brothers from the Class of 1977. "The five of us had a great time," he writes. "It's been about 30 years since we've seen each other."

Steven Fine '77 married Eileen Mushin in June 2006. They reside in Derby, Conn., with Eileen's three children—Andrew, 15, Alyssa, 12, and Jenna, 10, and Steven's daughter, Destany, 8. Steven remains at Laticrete International (his 20th year) as a senior product development chemist. He was recently elected secretary/treasurer of the Methods and Materials Standards Association for the ceramic tile industry.

Personnel from the Harrington Group, the FPE firm founded by **Jeff Harrington '77**, led efforts to unite international standards of excellence for safety and health professionals during a meeting between the Board of Certified Safety Professionals (BCSP) and the Singapore Institute of Safety Officers (SISO) in Singapore in May 2007, which resulted in the signing of a Memorandum of Understanding (MOU) between the two organizations.

Bruce Minsky '77 was appointed associate dean and professor of radiation and cellular oncology at the biological Science Division, Pritzker School of Medicine, University of Chicago, and chief quality control officer for the University of Chicago Medical Center. In 2004, he received an honorary doctorate from the Friedrich Alexander University in Erlangen, Germany, for his work on gastrointestinal cancer.

John Woodhull '77 is an environmental process engineering manager at ENSR. He was recently appointed to the editorial advisory board of *Pollution Engineering* magazine.

Ron Fish '78 received an MBA from RPI in September 2006. He lives in Circleville, N.Y., and works for WMG Inc.

Reunion at Sebago Lake Scott Sieburth '77 writes, "In September 1973, I lived on the third floor of Morgan, with **Michael Sullivan** and **Steve Albino** across the hall. One of our RAs was **Jon Anderson '75**. Here's a recent photo of the four of us hanging out at what we refer to as 'Beer Camp' at Steve's place in Maine." (From left, Jon, Michael, Steve, and Scott.)

Reunion in Sedona A Class of '78 reunion in Arizona last year included (from left) **Larry Hindle, Chris Cocaine '77, Brian Clang, Laurence Shiembob, David Sartorelli,** and **Peter Landry.**

Thomas Gudewicz '78, MD, is a founding member of the American Board of Disaster Medicine, offering training and certification to help physicians prepare for large-scale emergencies.

Bernice (Albetski) Hicks '78 received her MLS degree from Emporia State University in December. She is a reference librarian at Lafayette Public Library in Colorado.

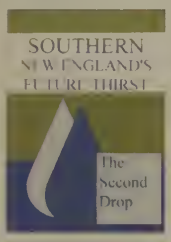
John McGee '78 was appointed a full-time instructor in the mathematics and statistics department at Radford University. He

Bookshelf

Recent and new publications by WPI alumni, faculty, staff

Southern New England's Future Thirst: The Second Drop

by Thomas S. Boron '64 *RoseDog Books*



Following up on his first book, *A Central Lakes Region Solution*, Boron provides detailed explonotions of the initiol steps needed to implement a regionol plan for meeting the woter demonds of the future by shoring resources, rother thon competing for them. Baron is o former Army Corps of Engineers officer and former director of operations for the Boston Metro Woter System. His proposol for a tri-stote regionol plan wos published in the September 2005 *Journol of the New Englond Woter Works Association*.

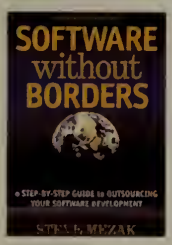
Innovation: The Five Disciplines for Creating What Customers Want

by Curt Corlson '67 and Williom W. Wilmot *Crown Business*

"Innovotion is the process of creoting ond delivering new customer value in the morketploce," writes Corlson. As CEO of SRI Internotionol, he has looked deeply into the processes by which componies creote ond lounch innovative products. His book outlines a tried-ond-true methodology for fostering creotivity and understonding whot customers reolly volue and need. *Business Week* nomed Carlson's book one of the Best Business Books of 2006.

Software without Borders: A Step-by-Step Guide to Outsourcing Your Software Development

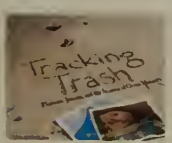
by Steve Mezok '78 *Earthrise Press*



This honds-on, how-to guide includes chapters on selecting on outsourcing vendor, developing metrics, protecting intellectuol property, ond more. The oppendix offers an outsourcing strategy decision matrix and o reodiness test. Professor Rick Voz writes, "WPI is o pioneer in producing internotionolized engineers. Tolent recognizes no borders. Well-educoted, technicolly adept software developers oround the world ore ovailable to deliver relioble softwore quickly ond inexpensively. And this book shows you how to connect with them." Professor Dovid Cyganski is credited in the acknowledgements. Mezak is founder ond CEO of Acceleronce Inc. and o veteran of six start-ups.

Tracking Trash: Flotsam, Jetsam, and the Science of Ocean Motion

by Loree Griffin Burns '91 *Houghton Mifflin Co.*
Boston Globe-Horn Book Award-2007 Honor Book (Nonfiction)



When hundreds of Nike sneokers storted woshing up on beaches in Seattle in 1990, a maverick oceanogropher tracked them bock to o corgo spill ond began to onalyze their dispersol. *Tracking Trosh*, part of the "Scientist in the Field" series for middle school reoders, exploins some of the unorthodox methods used to study oceon currents, including beochcomber networks, rubber ducks, and computer simulation. With lively stories, vivid photogrophy, ond ottractive grophics, Burns explores the growing problem of monmode debris in our oceons, the threot to marine hobitots, ond the consequences for humonity. She holds a doctorote in biochemistry from the University of Massachusetts Medical School ond is ot work on her next book for children.

received his master's from Virginia Tech with the thesis topic "Rená Schoof's Algorithm for Determining the Order of the Group of Points on an Elliptic Curve."

John Petze '78 was appointed CEO of Privaris Inc., a wireless biometric security firm in Charlottesville, Va.

Steve Rusckowski '79 is CEO of Phillips Medical Systems in Amsterdam, Netherlands.

1980

Chris Dennison writes, "I'm proud to announce my recent marriage to the fabulous Barbara Gorman, which also brings me three great step-grandchildren, Laura, Patrick, and Bridget. After a long time living in the shadows of NYC, I moved myself and my business to the suburbs, which is a bit of a change, but also a lot of fun. I almost feel like a grownup now!"

Steve Kmiotek of EBI Consulting received the Air & Waste Management Association's Leadership and Contribution Award.

Mark Lewis and his wife, Louise, live in Amador County, Calif., with their three sons and daughter. They have a new grandchild, Elizebeth Ann, born Aug. 23, 2006, to their son, Stephen, and his wife, Crystal.

Singer/songwriter **Martin Rowe** strikes again with another blues anthem for engineers. Go to tmworld.com/blues to download "The Lab in the Corner," a tribute to the "the test guy," who has the final say on product release. You can also listen to his first hit, "Measurement Blues."

John Titus and his wife, Beth, are pleased to announce the birth of Nora Marie on Feb. 6, 2006. "It's interesting having a newborn again," he writes. They live in Lonsdale, Minn.

1981

Elly Cromwick and her new husband, Joseph Tierney, live in Washington, D.C. Elly is a preconstruction manager with Turner Construction's mid-Atlantic office and is pursuing a master's degree at Virginia Tech. She has two sons—Tom, who starts college this fall, and Devin, a high school junior.

Mati Weiderpass, co-creator of Watch World International, sold that business in 2000, after expanding from a single store to 119 locations in 6 years. He and his partner, Ian Reisner, plowed the proceeds into The

Carnegie Hotel in New York City, which sold for a record $1 million per hotel room, plus $800 per developable foot for the development site. Parkview Towers, a condo development plan featuring multimillion-dollar apartments with Central Park views, is in the works, and the two are moving on to a 100-unit condo complex tentatively called Chelsea Heights, and a 200-room hotel project in Midtown.

area and want to do some fishing, just give me a ring!" The Bob's Outdoors website (bobsoutdoors.com) also posts reports of Bob's own hunting and fishing adventures.

Cynthia Kosciuczyk founded Designer Tastes Gallery, to offer a synthesis of international artists working in varied media. Her October 2006 open house featured a taste of Greek art and culture.

Seasonal Sports

At left, Bob Millington '90, Stefan Heline '86, Mike Kelly '86, and Mike Gonsor '86, cheer on the Red Sox with the Boston Regional Chapter in August 2006.

At right, John McNamara '85, Tom Denney '86, Heline, and Gonsor at the top of the Bridger Gondola at Jackson Hole Mountain Resort in Wyoming. John lives in Lexington, Mass., and is VP, operations, and treasurer for Arlington Coal & Lumber. Tom lives in Marion, Mass., and is regional director for The Hanover Company. Stefan lives in Hebron, Conn., and is principal consultant, IT, with Pratt & Whitney. Mike also lives in Hebron, and is a program/contract manager with Pratt & Whitney.

1982

Tom Fiske is a member of the automation consulting team at ARC Advisory Group in Dedham, Mass. He is a contributing editor for *Hydrocarbon Processing*.

George Oliver was named president of Tyco Safety Products. He is based in Boca Raton.

1983

Bob Hicks writes, "I have ditched the corporate world to sell fishing tackle. If any of my old classmates are in the Michigan

Eric Peterson earned his MS though RPI's Hartford campus in August 2006 and hopes to enter the PhD program soon. He continues at Hasbro in East Longmeadow, Mass., as vice president of electronic engineering and technology development. "My three boys and my wife, Colleen, continue to be my support and motivation," he writes.

1984

Todd Cimino is president of Cimino & Assoc., a management consulting firm serving the oil and gas industry. Todd and his wife, Diane, live in Houston, with their children, Marcello, 8, and Marina, 4.

John McNamara coaches the girls' basketball team at Pentucket Regional High School in West Newbury, Mass. His daughter, Erin, is a point guard.

Scott Rudge received the Merriam Wiley Distinguished Author Award from the American Society of Engineer Educators for his book, *Bioseparation Science and Engineering.*

Keith Ruskin was recently promoted to professor of anesthesiology and neurosurgery at Yale University School of Medicine. He lives in Westport, Conn., with his wife, Andrea, and son, Daniel, 8.

Richard Testa is a partner in the new Lincoln, Mass., office of Lincoln Architects LLC.

1985

"Greetings from the Pacific Northwest," writes **Denise Johnston-Hafenbrack**, who has left Blount to become supply chain manager for Micropump/Idex Corp., in Vancouver, Wash. "My daughters are both in high school; Kaitlin is 14, and Carly, 17, will be leaving for college in September. Time flew by! When I'm not at work, I am watching them play basketball, cooking, and plotting my next trip back to New England. I sure miss snow, Dunkin' Donuts coffee, and Cape Cod!"

Michael Smith (MSEE) has been named dean of Harvard University's Faculty of Arts and Sciences. He was previously the Gordon McKay Professor of Computer Science and Electrical Engineering. He also served as associate dean for computer science and engineering during a transformational time for Harvard's new School of Engineering and Applied Sciences.

1986

Jim Baum, formerly with Parmetric Technology Corp. and Endeca, was appointed president and COO of Netezza, a data warehouse company in Framingham, Mass.

Mike Duquette runs operations for Insulet Corp., an insulin pump company in Bedford, Mass. "Nanette and I still enjoy the city of Worcester, as we live in nearby Shrewsbury with our four children.

David Lugowski received tenure and promotion to associate professor of English at Manhattanville College, in Purchase, N.Y., not far from New York City. He also serves as director of the interdisciplinary Communication Studies program, which had its major approved by New York State this past year.

Donna Barone Viens writes, "After 16 years in engineering, including a two-year stint in Belgium for Pratt & Whitney, I left the corporate world for teaching. I am now a high school math teacher at Wilbraham & Monson Academy, where I coach varsity volleyball. My daughter, Jeannette, is an 8th grader at the school, and is following in my footsteps as a volleyball player. My son, Jack, is a 6th grader who has his mom's math and science genes. I'd love to hear from classmates at dlvstateside@msn.com.

1987

Air Force Lt. Col. **James Berry** commands the 485th Intelligence Squadron at Mainz-Kastel Station in Wiesbaden, Germany.

Ari Chaney joined WaterPartners International's board of directors. He is president and founder of Leveraged Restructuring, LCC, in Jupiter, Fla.

Mike Shipulski was named 2006 Distinguished DFMA Supporter of the Year, honoring a dedicated user and promoter of Design for Manufacture and Assembly software. An article on Mike's team at Hypotherm Inc. appeared in the July 17, 2006 issue of *Design News*.

Steve Woodard was promoted to senior vice president at Woodard & Curran, where he specializes in industrial waste treatment and biological nutrient removal processes.

1988

Robert Frommer was appointed senior vice president and Basel II program manager at Citizens Bank.

Gayle Harris, MD, (MS BBT) joined Collins Medical Associates 2 in Hartford, Conn. A graduate of the University of Connecticut School of Medicine, she has been practicing in the Hartford area for six years.

Lt. Col. **Rob Provost** is commander of the 614th Space Intelligence Squadron, Vandenberg AFB, in California, where his wife, Cindy (also a Lt. Col.), is assigned to the 30th Space Wing Plans and Programs office. Rob also runs a fly-fishing destination business, Grand Slam Fly-fishing Destinations (grandslamflyfishing.com), specializing in hosted trips to premier freshwater and saltwater destinations around the world.

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• #9 "Where Your Career Prospects Are Brightest"

U.S. News & World Report:
• Top 65 National Universities
• Best Online MBA Program

Business Week:
• Top Part-time MBA Program

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1989

Jennifer Chiao (MS EE) is a principal design engineer in the library development group of Broadcom in Irvine, Calif.

Adam Pease started Articulate Software, a consultancy specializing in open source ontology, in 2003. He has published research papers on topics such as linguistics, ontology, and group collaboration. Last year he climbed California's Mt. Shasta with **Dave Rothkopf '90**, and has made several attempts on Mt. Aconcagua in Argentina. Learn more about his business and his climbs at articulatesoftware.com.

1990

Al Alonzi and his wife, Susan, happily announce the birth of their second child, Elizabeth Addison, on Aug. 28, 2006. They live in Austin, Texas, where Al is the deputy division administrator of the Federal Highway Administration Texas Office.

Ken Comey and his wife, Julie, are proud to announce the birth of their first son, Joseph William, on July 13, 2006. They live in Redondo Beach, Calif., where Ken is a member of BP America's Environmental Compliance and Advocacy Team.

Paul Dombrowski joined Woodard & Curran as a vice president in the Cheshire, Conn., office.

Former wrestling captain **Brian Glatz** has moved on to coaching and teaching at Cherokee High School in Marlton, N.J. After breaking his neck in a judo competition in 1991, he was immobilized for months and had to learn to walk again. A profile in the *New Jersey Post Courier* described his comeback as a geometry teacher, wrestling assistant, and varsity football coach.

Nancy (McLaughlin) Kazmer and her husband, David, welcomed a baby girl, Catherine Marie, on June 22, 2006. She joins her big sisters—Laura, 8, and Elizabeth, 4—at their home in North Andover, Mass.

Miklos Kiss completed a postdoctoral research associate position in the Department of Medical Physics at the University of Wisconsin-Madison. He is now a research engineer at Volcano Corp., in Cleveland, on the campus of the Cleveland Clinic. He is

In the Public Eye

Flying magazine cited **Dick Whitcomb '43** in an article on the design of Honda's new light jet. Whitcamb is famaus for developing the "area rule" and ather advances in madern aeradynamics ... **Bruce Maccabee '64** was interviewed by the **History Channel** for a documentary on UFOs, and by **Raiders News Network** for a 60th anniversary series af the 1947 Roswell, N.M., incident ... **Curt Carlson '67** was quoted in a Sunday **New York Times Magazine** caver stary an the "Greening af Geapalitics" ... **Dean Kamen '73** was hanared with a 2006 Glabal Leadership Award from the **United Nations**, along with Bill Clinton. Kamen was dubbed "The Father af Inventians" in a **Newsweek** interview ... WPI Directar af Camputing Services **Ben Thompson '73** was appointed ta Mass. Gav. Deval Patrick's **Public Safety and Security** warking graup, charged with develaping the new gubernatorial administration's policy agenda far the transitian ... **Business Week** described the success af Nandi Infrastructure Carridar Enterprise Ltd., the company in India af **Ashok Kheny '74** (MS MSR) ... **Dean Stratouly '74** was profiled in **Boston Business Journal** ... **Judy Nitsch '75** was a panelist in three sections af the **BuildBoston 2006** convention and trade shaw. Her firm, Nitsch Engineering, was named Best Civil Engineering Firm ta Wark Far by **CE News**, and Emplayer af the Year by **WTS International** ... **Terese Kwiatkowski '83** was profiled in the **Boston Herald**. A farmer president af the Boston Society of Civil Engineers, she is seniar vice president and principal at GZA GeaEnviranmental Inc. ... **Karen Tegan Padir '90** was named ane af **Mass High Tech**'s Women to Watch. She is vice president af enterprise, Java platfarms, far Sun Microsystems ... **Sarah Arsenault '98** was amang the New Faces of Engineering selected far Natianal Engineers Week. A prafile in the **Hartford Courant** emphasized her cammitment ta enviranmentally friendly design in her work as seniar research engineer at UTC ... "French Vanilla," a comedy by **Catherine "Cat" Darensbourg '02** and **Elliot Field '02**, was selected for the 32nd annual **Samuel French Off-Off Broadway Original Short Play Festival** in New Yark City. The performance was directed and praduced by WPI students, with a cast af New Vaices veterans ... A videa padcast an **Romiya Glover '04** was part af **WGBH-TV**'s "Prafiles in Science" Web series. The video shaws Glover at wark in her lab at PaintCare Technalagies, in Marlbarough, Mass., where she is develaping a new HIV/AIDS testing device, and in Harrington Auditorium, caaching the WPI cheerleader squad ... **Business Week** prafiled DynDNS CEO **Jeremy Hitchcock '04** and mentianed co-head **Tom Daly '04** ... ParkingBan.arg, the creatian af **Adam Epstein '05** and **Mike Terranova '06**, was featured in **Worcester Magazine**. The site helps Warcester residents stay an tap of snow emergency parking ... "Life af Fred," a comic strip by **Tom Roy '05** was mentioned in a Warcester **Telegram & Gazette** article that also described Ray's career as a filmmaker and physicist ... The **Telegram & Gazette** ran a maving stary about the quest af **Patrick Spencer '05** ta help hameless peaple. He is the san af ane af the firefighters killed in the 1999 Warcester Cald Storage warehouse fire started by twa homeless peaple wha had taken shelter there ... **Joanna Bridge '07** was commissioned as a Navy ensign by President George Bush in a May 17 ceremany at the **White House**.

conducting research on ultrasound catheters used in the detection and diagnosis of atherosclerosis.

Patti Newcomer-Simmons and her husband, Stan, had a son, Weldon Mason, on April 25, 2006, just two months after Patti started a new job as CMO of the Card Services business at Wachovia. Their daughter, Megan, turned 3 this past May. They live in Charlotte, N.C.

Albert Prescott, president of Crescent Innovations in Worcester, won the 2006 WPI Venture Forum Business Plan Contest with his proposal to develop a polymer gel to relieve the pain of TMJ and other joint conditions. He also received the 2007 Kalenian Award, which includes $25,000 to develop prototypes and move the technology to commercialization.

Edward Urquhart is CEO of Maerkisches Werk Halver, GmbH, where he oversees operations in Germany, Korea, Japan, China, and the United States. He recently joined the board of directors of SulphCo Inc.

Ron Skoletsky and his wife, Marie, and family moved to Portland, Ore., to become owners and operators of The Little Gym of Lake Oswego. They now spend their days growing motor skills and building confidence in children ages 4 months to 12 years.

1991

Loree Griffin Burns was awarded a grant from the Society of Children's Book Writers and Illustrators for her next book project. (See the Bookshelf column for her latest publication, a Horn Book honorable mention.) She writes, "Stay tuned…and visit loreeburns.com for more info."

WPI Athletic Hall of Famer **Brian Daly** ran the 2007 Boston Marathon on behalf of his son, Michael, to raise awareness of pediatric epilepsy. He reports that Michael is doing well and has been seizure-free for nearly three years. Learn more at firstgiving.org/daly2007.

Joel McCarroll and his wife, Andrea, had their second child, Ryan, on Jan. 15, 2007. Joel continues as region traffic manager for ODOT Region 4, based in Bend, Ore.

Duane Morin is chief architect for Connect Edu Inc., a Boston-based company that helps students and schools through the college application process with a variety of online tools.

Eric O'Connor writes with this recap: "I've been living in Portland, Ore., with my partner, Laura Taylor, since 2005. I'm working as a senior software developer for Adobe's Mobile & Devices Group, building client/server applications to deliver dynamic Flash content to handsets. I work from home and travel down to the San Francisco office occasionally. In my spare time, I play in two rock bands."

1992

Scott Ashton started a new position as vice president, aircraft acquisitions, at PrivatAir in Stratford, Conn., selling corporate jets. He was also elected vice president of the New England Air Museum and selected as a member of *Hartford Business Journal*'s 40 Under Forty class of 2006.

Kevin Chin and his wife, Nina, are the proud parents of Amanda Natalie, born Dec. 28, 2006. Her brother, Tyler, was born in 2005. They live in Northern Virginia, outside Washington, D.C., where Kevin and Nina both work for Lockheed Martin.

Lyle Coghlin and **Patrick Tompkins** are co-owners of CTA Construction in Boston. Their current projects include schools and municipal buildings throughout New England.

Teri (Drake) Hamlin recently became NASA's technical lead for the Space Shuttle probabilistic risk assessment. She lives in Texas with her husband, Rick, and their two children, Emily and Stevie.

1993

Peter Cavallo and his wife, Gail Speakman, announce the arrival of twin daughters, Sara and Michaela, on Sept. 27, 2006. The girls join big brother Daniel, 3. Professionally, Peter was recently named an associate fellow of the American Institute of Aeronautics and Astronautics.

Rhonda (Ring) and **Philip Marks** had their third child, Harry Philip, in November 2004. He joins his big sisters Caroline and Charlotte in their Chester Springs, Pa., home. Philip is manager of U.S. product development at Federal-Mogul Systems Protection Group, and Rhonda works from home as a Web consultant.

Stephen Tomas was promoted to director, flexible electronics, at FLEXcon Co. in Spencer, Mass.

Hermine Valizadeh joined the Electrical & Computer Group of Brinks Hofer Gilson & Lione in Chicago. A former IT consultant and a graduate of New England School of Law, she will focus on patent prosecution and litigation.

1994

Peter Berube and his wife, Tricia, welcomed the birth of their son, Ryan Dennis, on June 2, 2006. Peter is currently a major in the United States Air Force, stationed at Shaw AFB, S.C. He was assigned to the 9th AF/CENTAF in 2005, after completing a two-year assignment as an AFROTC instructor at DET 340 at WPI.

Chad Council lives in Londonderry, N.H., with his wife, Lora, and their retired racing greyhound, Keeper. He works for Motorola as a senior software engineer on the network element management aspect of the company's Fiber to the Premises project. Chad has expanded his involvement with FEMA's MATF1 Urban Search & Rescue by completing training to become a communications specialist.

Christy (Hinkley) Deliberto and her husband, Buddy, recently opened Pop's Pizza in Worcester's Tatnuck Square. They announce the birth of daughter Ashley Soozie on May 8, 2005. "Please come visit the pizza shop when you are in town!"

Kevin Hunt is general manager of VIA, a new "Italian comfort food" restaurant on Shrewsbury Street in Worcester. He previously worked for two popular Worcester eateries—The Sole Proprietor and One Eleven Chop House.

Dena Niedzwiecki married Diego Mechoso on Sept. 2, 2006, with **Becca (Mason) Yang** in the wedding party. Dena is a pediatrician practicing in Arcadia, Calif.; Diego is a pediatric hospitalist at Valley Presbyterian Hospital in Van Nuys.

Matthew Thibodeau and his wife, Jody, recently moved to San Luis Obispo, Calif. Matt is working as an energy efficiency consultant for VaCom Technologies and is

enjoying the beautiful weather and scenery in the central coast region of California. A multiple-time USA Triathlon All-American, Matt continues to compete in triathlons and recently notched his eighth overall victory at the San Luis Obispo Triathlon.

1995

Jeff Baron and his wife, Kim, are pleased to announce the birth of their second daughter, Rachel Grace, on July 24, 2006. She was welcomed by her big sister, Sarah, who is enjoying being mommy's helper. They live in Worcester.

Kathryn Chelini (MS MG) joined the law firm of Mirick O'Connell as an associate in the intellectual property group.

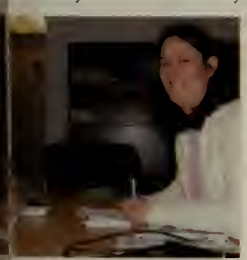
Jay Cimini and **Paul Gassler** have been working together at W. L. Gore in Ellkton, Md., for more than a decade. They both drive used Mercedes-Benzes that they converted to run on vegetable oil. A recent article on them in the *Chester County Press* bore the headline "Two amazing young men and their veggie-mobiles."

Spence Cocanour is stationed at USAF Hurlburt Field in Florida, where he serves as director of operations for the 23rd Special Tactics Squadron.

Heather (Linnehan) Desmarais and her husband, Dale, had a son, Jaden Dale, on April 28, 2006. "Big sister Kyla is thrilled to have a new baby brother," she writes.

Maj. **Neil Doherty**, USAF, married Dana Brown on June 15, 2006. Neil, an assistant professor of military science at BU, joined the Army Corps of Engineers, Gulf Region Division, Iraq, in July 2006.

Kristin Kotopoulis Garland (right) and **Kimberley Quigley Caserta** are consulting safety officers at Safety Partners Inc., providing safety support and development to life-sciences companies in the greater Cambridge area. This year, Safety Partners made *Working Mother* magazine's list of top 25 small companies for working mothers. "Working in high tech and raising a family is very difficult," says Kristin. "Kim and I were fortunate to find a company where we could put our WPI education to use and still be there for our children."



Deb (Long) Marceau and her husband, Tim, proudly announce the birth of their first child, Riley Elizabeth, on March 18, 2006. They live in Virginia.

Kevin Shea received the Sherrerd award for distinguished teaching from Smith College, where he is assistant professor of chemistry.

1996

Paul Cabral has been an environmental engineer with Camp Dresser & McKee for more than nine years. He recently transferred to the Albany, N.Y., office, where he focuses on drinking water projects.

Katie Daly received her MBA from Babson College in May 2006. She is group manager of program management in the Oncology Division of Boston Scientific.

Rachel (Butland) Delisle received her MBA from WPI in February 2006. She is a Six Sigma engineer for Karl Storz Endovision in Charlton, Mass. Rachel and her husband, John, were married in 2000 and live in Dudley.

1997

Jeffrey Cayer and his wife, Shari-Ann, both teach chemistry at Trumbull High School in Connecticut. They were married in 2005.

Craig French joined Tighe & Bond as manager of the structural department. He lives in Belchertown, Mass.

Hector Hernandez was appointed IT manager of the Dominican Republic operations of Edwards Lifesciences. He lives in Santo Domingo with his wife, Sandra.

Shannon Hogan and Matthew Hollander became engaged on March 5, 2006. They are both third-year pediatrics residents: Shannon practices at Connecticut Children's Medical Center in Hartford, and Matthew is serving in the Air Force at Wright-Patterson AFB in Dayton, Ohio.

Chris Jamieson left the Naval Air Warfare Center in February for a new job as an aviation systems evaluator at the U.S. Army Evaluation Center. He was recently deployed to Baghdad for six months as team evaluator for the Army Operational Test Command Forward Operational Assessment Team. He also moved to a condo in downtown Washington.

Peter Manolakos and his wife, Ani, proudly announce the arrival of their son, Niko George. Peter was promoted to executive oncology sales specialist for Eli Lilly. They reside in Chelmsford, Mass.

Deb (Foley) McManus and her husband, Steve, welcomed their first child, Patrick Peter, on Sept. 9, 2006.

Stephanie Torrey married John Vuk on Oct. 21, 2006. After honeymooning in New Zealand, they now reside in Sherbrooke, Quebec, Canada.

Jennifer (Clark) (MS '00, PhD '02) and **Bill Weir** (MS '97, PhD '02) have been blessed with a son, Joseph Robert, born Aug. 5, 2006, in Worcester.

Jason Wening is clinical research director for Scheck & Siress Orthotics & Prosthetics. He recently spoke with schoolchildren about his own prosthetics and showed videos from his competitive swimming career.

Anne (Ciccolo) and **Donald Ziniti '96** welcomed their second child, Marcus Charles, on Feb. 17, 2006. Big sister Sophia is 2. Don works at Johnson & Johnson, and Anne writes that she is enjoying being a stay-at-home mommy.

1998

Jeff Alderson was promoted to director, strategic partnerships, for Connect Edu Inc. in Boston, which provides online tools to help students apply to college and helps schools track the process. He was the fifth employee to join the startup, which has grown to more than 50 employees Jeff and his wife, **Sara (Maska) '04** (see her note under 2004), reside in Brighton, Mass., with their two cats, Ace and Venti.

After eight years of active duty, Lt. **Slade Brocket** transitioned to the Naval Reserve. His active duty included service aboard two submarines—the USS *Providence* and the USS *Ohio*. He also served on the staff of Commander, US Naval Forces Europe, in London. Slade is now a project engineer with BP at the Cherry Point Refinery. He and his wife, Mary, live near Blaine, Wash., with their children, Annika and Emma.

Doug Davis and his wife, Nevriye, announce the birth of their first son, James Preston, on Dec. 27, in Izmir, Turkey, where Doug works as a contract performance manager, and Nevriye practices law.

Stephen Fong is assistant professor and head of the Evolutionary Engineering Laboratory at Virginia Commonwealth University.

Michael and **Rosanna (Catricala) '99 Glynn** are thrilled to announce the birth of their first child, Thomas Michael, on Sept. 28, 2006. They live in Cromwell, Conn.

Jason Hutt (2nd from left) poses with the ISS crew he trained for Expedition 14 aboard the Russian spacecraft *Soyuz 13S*. The record-setting 215-day mission returned to Baikanor Space Center in Kazahkstan on April 21, 2007. As station training lead, Hutt spent two years preparing the ISS crew for emergencies such as fire, power failure, depressurization, and malfunctions of the ship's life-support system and computer systems. "It's somewhat ironic to spend 75 percent of my time training the crew for things I hoped they'd never have to do," he says. During the grueling training period, the crew traveled back and forth between Houston and Star City, Russia. Hutt and his team conducted training sessions, simulations, and performance evaluations, and monitoring the crew's on-orbit performance to identify areas where training could be improved for the next mission.

Jill Baryza LeFevre and her husband, Gene, welcomed their second child, Robert Anthony, on Sept. 12, 2006. Big sister Gabriella is happy with the new addition to their Peekskill, N.Y., home, Jill reports.

Ray Halpin '99 is WPI's new GOLD Chair. The Graduates of the Last Decade Committee works with the Alumni Association to foster strong bonds between young alumni and WPI.

As incoming chair, Ray works with co-chair **Eric Marshall '02** and past chair **Jami Walsh '97** to lead a committee of representatives from each class. They are looking to recruit new committee members and launch regional subgroups. If you graduated between 1997 and 2007, you are a GOLD member! To get involved, contact gold@wpi.edu.

1999

Katie Taylor Boyd graduated from Albany College of Pharmacy in May 2006 with an accelerated doctor of pharmacy degree. She graduated summa cum laude, earning awards in both pharmacology/medicinal chemistry and pharmacy practice. Katie now works for Molloy Medical Arts Pharmacy as a clinical pharmacist. She lives in Poughkeepsie, N.Y., with her husband, **Kevin Boyd**, a process engineer at IBM.

Ed Cameron and his wife, Laurie, had a daughter, Isabelle Anna, on Jan. 27, 2006. Ed was promoted to lieutenant with the Round Lake, N.Y., fire department.

Linda (Cappuccia) Grelotti and her husband, **Rob Grelotti '98** are pleased to announce the birth of Katherine Luisa on Aug. 15, 2006. Linda is a lawyer for the State of Connecticut, and Bob is a staff engineer at Pratt & Whitney. They live in East Haddam, Conn.

Will Nunn married Kerri Lachance on Dec. 30, 2006. They live in Rhode Island, where Will works for Toray Plastics and Kerri for Electric Boat.

After eight years in the Air Force, **Pat O'Sullivan** works for The Miter Corp. in Bedford, Mass., as a senior multi-disciplinary systems engineer.

2000

Former crew captain **Brittany (Noga) Campbell** is now a coach at The Bromfield School in Harvard, Mass.

Kara (Gibbs) and **Kevin Delaney** welcomed their first child, Colin Gibbs Delaney, on July 29, 2006. They live in Bloomington, Ind.

U.S. Army Lt. **Seth Flagg** graduated from Tufts University School of Medicine in May 2006. He received his commission upon graduation and is currently serving his country as a family medicine intern at Naval Hospital Camp Lejune in North Carolina.

Kirk and **Christine (Belushko) Johnson** live in Dayton, Ohio, with their children, Aidan, 4, and Erin, 2. Kirk is an Air Force captain stationed at Wright-Patterson AFB.

Thomas Scherpa and **Malinda Danforth** were married Sept. 24, 2005. The wedding party included **Samuel Bullock, Jocelyn Songer,** and **Josef Scherpa '98**. Malinda received her MD from Dartmouth Medical School in 2005 and is currently completing her residency in pediatrics at Baystate Medical Center. Tom completed his MS in FPE in 2002 and is currently working as a process safety and fire protection engineer for DuPont. They live in Agawam, Mass.

2001

After they moved to their new home in Leominster, Mass., **Kevin Beverage** proposed to Kate Wrigley, a staff member in WPI's Academic Technology Center. They are planning a September wedding, to be held in Stowe, Vt.

At **alumniconnect.wpi.edu** you will find a new and improved searchable alumni directory; enhanced networking opportunities based on your profession, personal interests, geographical area, or WPI affiliation; job and resume postings exclusively for WPI alumni; up-to-the-minute news about your classmates; along with quick and easy ways to register for WPI events or make a gift online. For login information, contact 508-831-5600 or alumni-office@wpi.edu.

Eugene Cushman married Chelsea Richards on Sept. 16, 2006. Alumni attending their Seattle wedding included best man **George Stuart** and Eugene's sister, **Anna Cushman '91**. The couple honeymooned in Hawaii and currently resides in Arlington, Mass.

Kathy (Pacheco) Czerwiec (right, with her buddy, Karen Kohanek) was honored by Best Buddies of Western Massachusetts for her volunteer service as a Citizen Buddy—an adult who shares companionship with a person with intellectual disabilities. Kathy teaches mathematics at Chicopee (Mass.) High School.

Brooke (LeClair) and **Matthew Daniels** announce the birth of their second child, Elliott Glenn, on Sept. 6, 2006. They and big sister Sophia live in Norwood, Mass.

Ken Gagne participated in the MS Challenge Walk in September 2006, along with several employees of WPI and the Mass Academy. After teaching writing and film at Mass Academy for two years, he now works for School Year Abroad. Ken completed a second MQP in E-Term 2006, adding a humanities major with a concentration in writing and rhetoric to his '01 BS degree in technical communications. He also serves on the board of directors of Calliope Productions Community Theater.

Jessica Hoepf and **Jeff Costa '02** were married April 22, 2006. (Jeff's name was incorrect in the previous issue of *Transformations*.) After a honeymoon in the South Pacific, they now live in Malden, Mass.

Fang Li (MS FPE) is founding president of the China Chapter of SFPE, which she helped establish last year. She works as operations manager of the Shanghai office of Rolf Jensen & Associates.

Kenda (Conklin) Newton works at NASA's Goddard Space Center. She married Jeremiah Newton last year.

Erica (Lafont) and David Philips announce the birth of their first child, Adley James, on Aug. 7, 2006.

Robyn Prinsen and Jeffrey Miller and got engaged while on vacation on Kaua'i, Hawaii, in December 2006. They are planning an autumn 2007 wedding.

2002

Army Capt. **Marc Bullio** returned from a 16-month deployment in Iraq in December 2006. He served with the 177th Stryker Brigade.

2nd Lt. **Alexander Clifford** ('04 MS) is serving at Edwards Air Force Research Laboratory as a rocket plume signature research engineer. He received his officer's commission in July 2006.

Alexander Haley works for Meditech as a programmer analyst. He and his wife, Emily, live in Worcester.

George Hanlan is an engineer at OFS Specialty Photonics. He lives in Southbridge, Mass., with his wife, Laura, a librarian at WPI's Gordon Library.

Alison Hughes and Jason Katz '01 were married Oct. 28, 2006. The wedding party included best man **Ryan Johnson '01**, groomsmen **Jim Shannan '00** and **Brian Carelli '00**, and bridesmaids Jaclyn McHugh and Kim Morin. The couple honeymooned in Europe, with stops in Paris, Tuscany, and Rome. They currently reside in Ashland, Mass.

David Jasinski married Adeline Ashmore on July 4, 2006. He is an electrical engineer at the Naval Undersea Warfare Center.

Jeremiah Johnson won the Charles Russell Bard Award for employee excellence from his employer, C. R. Bard Inc. He is a project engineer in the Electrophysiology Division.

Michael Krager became engaged to Alyssa Chelotti on Feb. 22, 2007. He is working at Kidde-Fenwal in Ashland, Mass., as a mechanical engineer.

Kerri (Dagesse) Lemire and her husband, Charles, welcomed their first child, Charles (Charlie) Romeo Lemire III, on Jan. 11, 2006. They were married in July 2002, with **Jason Field, Jason Hemmer**, and **Jonathan Hone '01** in the wedding party. Kerri, Chuck, and Charlie reside in Waltham, Mass.

Jared Rhoads celebrated the one-year anniversary of the Lucidicus Project, a nonprofit effort he founded to help medical students understand the moral and economic case for capitalism in medicine. He also works as a researcher for a healthcare consulting group in Boston and is taking philosophy courses through the California-based Ayn Rand Institute.

David Weatherwax works for Voice Signal Technologies. He married Michele Ingalls in October 2005.

2003

Kerry Lee Anderson and **Benjamin Kennedy '00** had a baby girl, Marie Jane Andken, on Sept. 27, 2006. They live in Newton, Mass.

Chantal Bichet and Richard Burdick were married in a private ceremony at their residence in Dedham, Mass., on Dec. 2, 2006. Chantal is a quality assurance documentation coordinator at AstraZeneca in Westborough, Mass., and can be reached at chantal_and_rich@yahoo.com.

Paul Elliot joined the New York office of Schirmer Engineering as an associate consultant.

Andrea Hubbard is pursing a DMV degree at Ross University School of Veterinary Medicine in St. Kitts, West Indies.

Jaclyn Maiorano ('06 MS ECE) joined the civil engineering group of Tighe & Bond in 2003. She recently passed her PE exam.

David Sama married Tiffany Tata, June 3, 2006. He is senior account manager with Modcomp in Deerfield Beach, Fla.

Jeff Savard is pursuing a PhD at Carnegie Mellon University. His June 2006 wedding to Jennifer Garbett included classmates **Jeremy Allen, Colby Hobart,** and **Craig Perkins** as groomsmen.

Christina Watson received her DVM degree from the University of Illinois College of Veterinary Medicine in May 2007. She is completing an internship in equine medicine at Blue Ridge Equine Clinic in Earlysville, Va.

2004

Tasha Andrade and **Josh Clark** were married on Sept. 24, 2006, with **Rebecca Hamel** serving as a bridesmaid, and **Jeff Simpson** as a groomsman. Other classmates in attendance included **Shaun Armistead, Erica Bartos, Tom Beigbeder, Andrew Freeman, JJ Tranquilli,** and **Kendra Stafford**. Josh is currently working as a software engineer at Nuvosoft in Waltham, Mass. Tasha is in her third year of law school at Roger Williams University in Bristol, RI. They took a mini-honeymoon in the Berkshires at Lenox, Mass., and will be going someplace tropical over the summer, after Tasha takes the bar exam.

John Baird started a unique literacy program at the New Haven Free Public Library. His project, called "Create a Comic," involves having elementary school children fill in blank speech balloons and thought bubbles on comic-book templates. He developed the approach while teaching English in Taiwan with Hess Educational Organization. The program has received rave reviews and has been publicized in the *Yale Daily News*, the New Haven *Advocate*, and the *New Haven Register*. John received his MS in epidemiology from the Yale School of Public Health in May 2007.

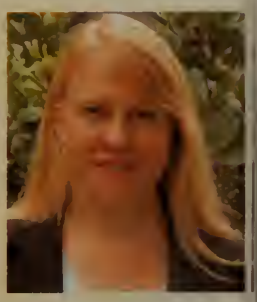
Erin Bliven is an epidemiologist with the Center for Disease Control and Prevention in Atlanta. She works with the Tuberculosis Clinical Trials Consortium in the Clinical and Health Systems Research Branch of the Division of Tuberculosis Elimination within the Center for HIV, Viral Hepatitis, STD, and Tuberculosis Prevention.

Pamela Comey is an associate systems engineer at Textron Systems in Wilmington, Mass.

Erin Dupak and **Tom Daley** became engaged in May 2006. Erin received a master of engineering degree in bioengineering from the University of California, San Diego. She works for DePuy Spine, a Johnson & Johnson company. Tom is president and chief technology officer of Dynamic Network Services Inc. They live in Nashua, N.H.

Brian Landry married Térèse Frazier on Aug. 4, 2006. Groomsmen included **Sam Gharabally**; **Justin Braga '05** was best man. Térèse is a graduate of the University of Massachusetts at Amherst and is attending Tufts University School of Medicine. Brian is currently attending Suffolk University Law School.

Advancing WPI



Lisa Maizite, formerly executive director of major gifts, has been promoted to the position of assistant vice president for development. In this role, Maizite oversees the university's major gift and annual giving staff.

"I am honored to be serving WPI in this new role," Maizite says. "I look forward to working even mor closely with the university's alumni and friends to hel advance the important work of this remarkab institution."

Maizite arrived at WPI in 1996 as director of the Alum Fund. Before WPI, she spent several years working development at Clark University. She holds a bachelor degree from the University of Vermont.

Eric Laurendeau is an electrical engineer at BAE Systems. On May 27, 2006, he married Carrie Momenee. They live in Merrimack, N.H.

Katherine Martel and **David Mason '06** (MENGR) were married July 1, 2006, with **Walker League-Pike** and **Daniel Thiffault '03** in the wedding party. Other alumni in attendance were **Aaron Meberg, Winfield Peterson '03, Elias Wilson '05**, and BE graduate program alumni **Anmol Nagre '05** and **Shweta Shanbhag '06**. After honey-

mooning in Belize, Katherine and David returned to their new home in Marlborough, Mass., where they now reside with their two Italian Greyhounds, Jackson and Mouse.

Sara Maska and **Jeffrey Alderson '98** (see his note under 1998) were married on Aug. 6, 2006. They honeymooned in the Mayan Riviera and now reside in their new home in Brighton, Mass. Sara recently accepted a position as a field application specialist with Promega Corp., where she will support academic accounts in Massachusetts, Maine, New Hampshire, and Vermont.

essica McAlear began PhD studies at the German Cancer Research Center (Deutsches Krebsforschungzentrum) in Heidelberg, Germany.

April Nunn completed her graduate degree t the University of Wisconsin last year and ow resides in Anchorage, where she is a nedical physicist for the Anchorage adiation Center at the Alaska Regional Hospital.

Theodoros Toufas is working on a PharmD egree at Massachusetts College of Pharmacy nd Health Sciences. He is a pharmacy ntern at Acton (Mass.) Pharmacy.

2005

aul Emery returned to Worcester from ouses Point, N.Y., where he worked for Wyeth Pharmaceuticals. He is now a forenc chemist at UMass Medical School and working on his master's at WPI.

Villiam Herbert works for Autodesk Inc., Manchester, N.H., providing support to nd users and resellers for AutoCAD.

ssica Reidel was accepted into the graduate studies program at the Catholic University America in Washington, D.C. She will gin part-time studies towards her master's gree in biomedical engineering at the hool of Engineering in the fall of 2007. urrently, Jessica works as a patent examiner for the United States Patent and Trademark Office in Alexandria, Va.

seph Reinsch and his wife, Amanda, are th petty officers 3rd class, stationed at the avy Nuclear Power Training Command in oose Creek, S.C. They were married in ovember 2005 and used their Christmas oliday leave to hold a reception at Joe's rents' home in Windsor, Conn.

Alumni Association Awards

The following awards were presented during Reunion Weekend, June 7–10, 2007.

Robert H. Goddard Award for Outstanding Professional Achievement

Ernest S. Hayeck '47, Retired Judge, Worcester Central District Court

William W. Rawstron '57, Retired Vice President, Technology Metso Automation USA Inc.

Domenico Grasso '77, Dean, College of Engineering, University of Vermont

Ichabod Washburn Young Alumni Award for Professional Achievement

David C. Cortese '92, Vice President, Information Technology, Sony Pictures Home Entertainment

John Boynton Young Alumni Award for Service to WPI

Jami B. Walsh '97

Herbert F. Taylor Award for Distinguished Service to WPI

Charles F. H. Crathern '52

George H. Long Jr. '57

Michael J. Stephens '57

Curtis R. Carlson '67

Joseph L. Ferrantino '67

William D. Cunningham '77

William R. Grogan Award for Support of the Mission of WPI

David Cyganski '75

2006

Amanda Otterman is serving in the Peace Corps as a mathematics teacher in Vanuatu, in the South Pacific.

Christopher Parker is pursuing a master's degree in biology and biotechnology at WPI. His research on influenza antigen design at UMass Medical School was published in the *Journal of Virology*.

2007

Michael McManus joined the Westfield, Mass., office of Tighe & Bond.

Graduate Management Program

Mehdi Sif '98 (MBA) is vice president, marketing, at Zeugma Systems in Palo Alto, Calif.

School of Industrial Management

George Walker '58 was appointed to the special task force for the revitalization of the Mississippi Delta by Lt. Gov. Amos Tuck.

Peter Leasca '65 has been active in honoring veterans of World War II. He is campaigning for a memorial statue on the Worcester Common behind City Hall. Interested alumni may contact him at LSTWW2@aol.com or 516 Grove St., Worcester, MA 01605.

Harold Johnson '77 is treasurer of The Parris Island Historical & Museum Society in South Carolina, and also serves as a member of the museum staff.

Harold Long '77 is CTO and vice president, engineering and portfolio management, for INS in Santa Clara, Calif. He was recently appointed as the INS executive delegate to the Airports Consultants Council.

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ALDEN SOCIETY

Obituaries

Transformations has learned of the death of **Russell H. Callahan '17** (Phi Gamma Delta) in 1994. He was predeceased by his wife, Anna, and a daughter. He retired from Tenneco (Tennessee Gas Transmission Co.)

Transformations has learned of the death of **Hamilton W. King '26** in 1996. He lived in Deerfield Beach, Fla., and was retired from Consolidated Edison Co.

Transformations has learned of the death of **Irving H. Campbell '29** (Theta Chi) in 1999. He was retired from U.S. Envelope Co. He and his wife, Barbara, had two children.

The last survivor of his class, **Arthur E. Gilbert Jr. '29**, of Louisville, Ky., died July 23, 2007. Predeceased by his wife, Mary (Southwick), he leaves three children. He attended his 75th Class Reunion in 2004 with his son, Richard Gilbert '54, who was celebrating his 50th Reunion. The retired vice president of Cheatham Electrical Switching, Gilbert contributed to the technology behind vehicles such as the bumper cars at Coney Island and cars used to haul ore from coal mines.

Henry F. Friel '31 (Phi Kappa Theta) of York, Pa., died Aug. 6, 2006. Predeceased by his wife, Lucine (Knox), and a daughter, he is survived by four children. Friel was retired from Wire Mesh Products as a product engineer.

Edgar C. Ansaldi '32 of Manchester, Conn., died Jan. 26, 2007. He was retired from Pratt & Whitney Aircraft as chief of experimental test laboratories. Predeceased by his wife, Alice (Aiken), he leaves two sons.

C. Milton Ekberg '32 (Phi Sigma Kappa), retired president of Abrasive Tools Inc., died July 24, 2005. He leaves his wife, Dorothy, of Cromwell, Conn., and three children. He was the brother of Alfred C. Ekberg '36, who also survives him.

Antonio P. "Jock" Maggiacomo '32 (Phi Kappa Theta, Skull) of Cranston, R.I., died June 24, 2006. A longtime science teacher and athletic coach in the Cranston high schools, he was designated a Sports Ambassador by President Gerald Ford. He was predeceased by his wife, Clara (Carlotti) and a son. Another son survives him.

Carroll C. Misener '32 of Zephyrhills, Fla., died May 24, 2006. He leaves his wife, Eunice (Hixson), four children, and two stepchildren. Misener was predeceased by his first wife, Rita, in 1977, and by his second wife, Ruth, in 1996. He was retired from the U.S. Naval Ordnance Laboratory, where he served as a mechanical engineer.

Frank L. Eaton Jr. '33 (Sigma Phi Epsilon) of Jonesboro, Ga., died March 24, 2006. He earned a master's degree in mechanical engineering at WPI in 1934 and retired from Hamilton Sunstrand as a senior designer. Survivors include his wife, Mary, and four children.

Robert E. Ferguson '33 (Sigma Alpha Epsilon) died Nov. 8, 2006, leaving his wife, Eileen (O'Brien), and eight children. He lived in Leicester, Mass., for many years and was owner and operator of Automatic Dispensers of Worcester.

Transformations has learned of the death of **Charles S. Dayton '34** in 2003. A retired district sales manager for General Electric Co. of Philadelphia, he was survived by his wife, Mae (Stillings), his son, Douglas Dayton '70, and three other children.

Donald C. Vibber '34, a longtime resident of Worcester and Southbridge, Mass., died July 1, 2006. He was the founder of Worcester Automatic Machine Co., and later served as chief engineer of Hyde Manufacturing Co. He is survived by his former wife, Eloise Vibber, and two sons.

Alumni who wish to make contributions in memory of classmates and friends may contact the Office of Development and Alumni Relations at 508-831-5660 or vlconti@wpi.edu.

Transformations has learned of the death of **Robert B. Logan '35** (Phi Gamma Delta) in 1994. He lived in Madison, Fla., and worked for St. Vincent Hospital and The Wilcolator Co.

George L. Chase '36 (Phi Gamma Delta, Skull) of Newcastle, Maine, died Sept. 16, 2006. He leaves his wife, Joy (Goddard), and two children. Chase worked for Scovill Manufacturing Co. for 30 years and later retired from Ball & Socket Manufacturing Co. as vice president.

William C. Maine '36 (Phi Sigma Kappa) of Columbia, Conn., died March 8, 2006. Predeceased by his first wife, Lucile (Hanna), and his second wife, Evalyn (Standish), he leaves two children. Maine was a plant engineer for Westvaco, Mohasco, and The Torrington Company.

Corrections: The Winter 2005 issue of *Transformations* erroneously reported the death of **Ralph M. Johnson '57**. The confusion arose from the death of a WPI student's father who bore the same name. • The death of **H. Roger Erickson '40** was mistakenly reported in the Fall 2006 issue. His brother-in-law, **Harold F. Henrickson '36**, died in 2005, which gave rise to a miscommunication with the records department. • The first name of **Robert H. York '62** was incorrect in his obituary in a previous issue. • Our apologies go out to those involved and their families.

Transformations has learned of the death of **Henry Plimpton Sr. '36** (Theta Chi) in 2002. He and his wife, Grace, had two children. He worked as a machine shop foreman for Manlabs Inc.

Erving Arundale '37 (Theta Chi) of Woodstock, Conn., died Aug. 12, 2006. A noted research chemist, he helped develop synthetic rubber to meet wartime needs, and unleaded gasoline to minimize pollution. He spent his career with Exxon Mobil Corp., established the Exxon Chemical Technology Center in Brussels, and retired with 68 patents in his name. Predeceased by his wife, Phoebe (Allison), he leaves three children.

Philip G. Atwood '37 (Alpha Tau Omega) of Fort Myers, Fla., died Jan. 31, 2006. After a 35-year career with New England Telephone (now Verizon), he retired as a staff engineer. His wife, Eleanor (Clark), predeceased him.

Transformations has learned of the death of **John E. Poeton '37** (Lambda Chi Alpha) in 2001. He lived in San Diego. His wife, Genevieve, died in 2003.

Allen R. Deschere '38 of Baileys Crossroads, Va., died March 5, 2007. His wife, Jane, died in 2000. Four children survive them. Deschere retired from Rohm and Haas as assistant director of research and later served as automated systems coordinator for the Library of Congress's National Library Service for the Blind and Handicapped.

Professor emeritus **Donald W. Howe Jr. '38** ('43 MSEE) of Westborough, Mass., died Dec. 12, 2006. He leaves his wife, Margaret (Walker), and six children. Howe taught at WPI for 50 years, starting in the physics department and then joining the electrical engineering department. An independent radio consultant and ham radio operator, he helped found public radio station WICN in Worcester.

John B. "Jack" Scalzi '38 of Easton, Md., died Dec. 20, 2006. Predeceased by his wife, Jennie (Celozzi), he is survived by two daughters and his partner of 14 years, Shirley Beck. An authority on bridge design, Scalzi retired from the National Science Foundation in 2005 as program director for infrastructure engineering, where he provided international leadership on earthquake protection. A former professor at Case Western Reserve and Carnegie Mellon universities, he was the author of several textbooks and numerous papers.

Transformations has learned of the death of **Robert L. Somerville '38** (Phi Gamma Delta) of Brunswick, Ga., in 2002. A consulting chemical engineer with numerous patents in his name, he specialized in the methodology of wet process phosphoric acid production and filtration technology. His wife, Elizabeth, and three children survive him.

E. Bruce Crabtree '39 of San Antonio, Texas, died Jan. 17, 2007. He leaves his wife, Anne, and three children. He retired as vice president of sales for Byrant Grinder Corp.

John F. Peavey '39 of Hendersonville, N.C., died Feb. 12, 2007. He was retired from the John H. Breck hair care company as plant engineer. He is survived by his wife, Anne, and four children.

Robert F. West '39 (Lambda Chi Alpha) of Cromwell, Conn., died Oct. 21, 2006. He leaves his wife, Dorothy (Nourse), and two children. As director of new products and research at Stanley Tools, he developed and improved many hand tools, including the PowerLock tape rule, and was named in more than 40 patents.

Transformations has learned of the death of **Carl Carnicelli '40** in 2002. He was a self-employed architect and engineer.

John A. Leach '40 of Brooklyn, Conn., died Aug. 22, 2006, leaving his wife, Priscilla (Karle) Reel, three children, and two stepchildren. His first wife, Alice, died in 1987. Leach was the founder of Leach Instrument Service.

Transformations has learned of the death of **Frederick B. Miller '40** (Alpha Tau Omega) in 2001. The former president of Echols International Travel Training, he leaves his wife, Virginia, and three children.

James I. Thurston '40 (Alpha Tau Omega) of Nobleboro, Maine, died Feb. 19, 2007. He leaves his wife, Jean, and three children. His first wife, Evelyn (Moore), died in 1993. Thurston was retired from Waite's Industrial Hardware.

Alexander S. Chodakowski '41 died Aug. 11, 2006, in Venice, Fla. A former member of the U.S. State Department, he served as an instructor and consultant to the Interagency Training Center in Fort Washington. He leaves his wife, Marian (Jenkins), and four children.

George P. Lentros '41 of Ashland, Mass., died May 9, 2006. He was the founder of Lentros Engineering, which he ran for 46 years. His wife, Angela (Koutsotasios), predeceased him. A son survives them.

Alvin A. Luce '41 (Phi Sigma Kappa) of Exeter, N.H., died Sept. 18, 2006. Predeceased by his wife, Ruth, he leaves two children. Luce worked for The Torrington Co. for 37 years and retired as a district sales manager.

George C. Andreopoulos '42 (Sigma Phi Epsilon) of Leawood, Kans., died Sept. 26, 2006. Predeceased by his wife, Mary (Murray), and his brother, Theodore Andreopoulos '38, he is survived by three children. Andreopoulos was retired from United Bakery Equipment Co. An offensive and defensive guard on the WPI football team, he was the first player to earn letters in all four years.

Edward H. Jacobs '42 of Bandon, Ore., died Dec. 26, 2006. Survivors include his wife, Judy, his former wife, Marge, and five children.

William S. Jackson '42 (Lambda Chi Alpha) of Anacortes, Wash., died April 24, 2006. He leaves his wife, Christine (McDonell), and three children. Jackson was retired from E.I. DuPont de Nemours as regional manager for the Southwest Division.

Frederic C. Merriam '42 of Danvers, Mass., died Nov. 11, 2006. He is survived by his wife, Ellen, and a son. Merriam worked for United Shoe Machinery as a senior organic chemistry researcher. He also operated Merriam Energy Systems.

Hyman "Haim" G. Nagirner Weinstein '42 (Alpha Epsilon Pi) of Green Oaks, Ill., died Oct. 20, 2006. A biomedical scientist, he received a master's degree from the University of Illinois Urbana and his PhD from the University of Chicago. He was a professor at Chicago Medical School (now Rosalind Franklin University of Medicine and Science). He also served on the faculty of the North Chicago VA Medical Center. Predeceased by his wife, Shirley, and a daughter, he is survived by a sister and his longtime friend and medical colleague, Moira Breen.

Auto Safety Pioneer

Carl Clark '45, best known as an advocate and innovator of airbag restraint systems for automobiles, died Aug. 24, 2006. His professional accomplishments also included developing a novel way to study the workings of the cell, setting the optical standard for "Coca Cola Green" (the color of Coke bottles), and pioneering the field of dynamic flight simulation to train X-15 pilots and Mercury astronauts for their missions. ❖ Clark developed and extensively tested the Airstop Restraint System for cars, the first practical automotive airbag safety system. His promotion of the benefits of airbags is credited with helping convince automakers to begin seriously investigating the practicality of adding airbag systems to cars. Later in life, he brought the same passion to his advocacy for the use of laminated safety glass in the side windows of cars. He also developed an airbag bumper system that could protect car occupants from serious injury in a crash into a wall at up to 50 miles per hour. He leaves his wife, Elizabeth, and four children. He was a member of Alpha Tau Omega and Sigma Xi.

Albert E. Whiton '42 of Pittsfield, Mass., died Jan. 18, 2007. He leaves his wife, Geraldine, and three children. He was retired from GE Naval Ordnance with 41 years of service.

Philip C. Wright '42 of Phoenix, Ariz., died Aug. 5, 2005. Predeceased by his wife, Bernice, he leaves five children. He worked as an electronics engineer and manager.

George N. Drawbridge '43 of Worcester died March 6, 2007. He was a longtime employee of Worcester Pressed Steel and L. S. Starrett Co. Predeceased by his wife, Emily (Sjostrom), he leaves two children.

Herbert H. "Hank" Ferris Jr. '43 (Phi Gamma Delta) of Alpine, Calif., died Jan. 9, 2007. He leaves his wife, Jane (Fitz), and six children. Ferris was retired from Prudential Securities as an investment counselor.

J. Perry Fraser '43 of Gorham, Maine, died Dec. 12, 2006. He is survived by his wife, Elizabeth, and three children. He worked for General Electric for almost 30 years and later worked for Mechanical Technologies.

Wilmot J. Keogh '43 (Phi Kappa Theta) of Norwalk, Conn., died Feb. 19, 2007, leaving his wife, Margaret (McElroy), and five sons. He was retired from Westinghouse International, where he served as president of Westinghouse South America.

Transformations recently learned of the death of **Edwin H. Matasik '43** (Phi Kappa Theta) in 2004. He lived in New Haven, Conn., and worked for Perkin Elmer Corp.

Former class vice president **Behrends "Pete" Messer Jr. '43** (Phi Sigma Kappa, Skull) of Princeton, N.J., died Aug. 28, 2006. A lieutenant colonel in the Army Corps of Engineers, Messer joined Mobil Oil in 1948 and retired as manager of wholesale plant and civil engineering for Mobil Oil Research and Development Corp. His contributions to standardization and regulation of the industry earned him a certificate of appreciation from the American Petroleum Institute. He is survived by his wife, Jeanne (Buckhorn), and four children.

John P. Newton Jr. '44 (Phi Sigma Kappa) of Selkirk, N.Y., died April 6, 2006. His wife, Maradean, survives him. He was a self-employed engineering consultant.

Transformations has learned of the death of **Earl S. Carpenter Jr. '45** of Salem, Mass., in 2004. The retired owner of Johnson Canvas Co., he leaves his wife, Janice.

Joseph D. Carrabino '45 (Theta Kappa Phi) died July 17, 2007, in Southern California. He held an MBA from Northwestern University and a PhD in engineering from UCLA. He served on the faculty and administration of UCLA for more than 40 years, traveling to Italy as a Fulbright professor and serving on the California State Board of Education. In 1987 Carrabino was awarded an honorary doctor of science degree by WPI for his research on effective management and engineering practices to enhance productivity. He and Marilyn had six children, who survive him.

Edward J. Dolan '45 (Alpha Tau Omega) of Wauseon, Ohio, died July 12, 2006. He leaves his wife, Dorothy, and four children. He was retired from General Motors Corp. Hyatt Division as a metallurgist.

Alfred E. Green '45 (Phi Sigma Kappa) of Shrewsbury, Mass., died May 29, 2006. He is survived by his wife, Barbara (Janson), and a daughter. A 1953 graduate of the School of Industrial Engineering, he was president and founder of Process Heating Corp. For his service to his class and to the Alumni Association, he received the Herbert F. Taylor Alumni Award for Distinguished Service in 2000.

Transformations has learned of the death of **Paul J. Meleen '45** (Lambda Chi Alpha) of Englewood, Fla., in 2004. His wife, Edith, and five children survive him. He was the owner of Meleen Motors Inc.

Bertrand C. Mills '45 (Phi Gamma Delta) of Vero Beach, Fla., died June 12, 2006. Mills began his career in General Electric's Management Training Program, became president of Carlyle Compressor Co., and

Generous Benefactor, Trustee, Loyal Friend

John C. Metzger Jr. '46, of Vero Beach, Fla., died Dec. 29, 2006. A WPI trustee since 1981, he was elected to emeritus status in 1989. Metzger received the Robert H. Goddard Alumni Award for Distinguished Professional Achievement in 1981. With his wife, Jean, he established the John C. Metzger Jr. Professorship in Chemistry in WPI's Department of Chemistry and Biochemistry. ❖ Metzger spent his entire career with DuPont Co. and retired as group vice president for the Photosystems and Electronic Products Division. In addition to his wife, he is survived by three daughters. He was preceded in death by his first wife, Jane Metzger. He belonged to Phi Gamma Delta, Tau Beta Pi, Sigma Xi, and Skull.

retired from Carrier Corp. as vice president of manufacturing. He leaves his wife, Marjorie, and five children.

Lionel H. Seccombe '45 (Sigma Alpha Epsilon) of Canton, Conn., died Jan. 4, 2007. Survivors include his wife, Alice "Jane," and two sons. He was predeceased by a daughter. Seccombe was a design engineer. His employers included B. A. Ballou & Co. and Aquidneck Data Co.

Frank J. Stefanov '45 (Theta Chi) of Avon, Conn., died Dec. 20, 2006. He worked for The Torrington Company as a mechanical engineer for 38 years and retired in 1985. He was the husband of Mary Evelyn (Guertin), and the father of Elizabeth Stefanov Johnson '89. He is also survived by six other children.

William R. Bingham '46 (Theta Chi) of Lunenburg, Mass., died Jan. 25, 2007. A self-employed land surveyor, he operated William R. Bingham Associates and assisted the local historical society in researching old homes and roads. Survivors include his wife, Mary (Bickford), and four children.

George R. Brown Jr. '46 of Versailles, Ky., died Nov. 26, 2006. He leaves his wife, Nora (Walker), and four children. He was a director of Massachusetts Mutual Insurance Co. for more than 24 years.

Robert F. Budge '46 (Alpha Tau Omega) of Bristol, Conn., died Dec. 8, 2006. He was predeceased by his wife, Gloria (Merrill). He was retired from Altair Corp. as quality control manager.

George Button '46 of Vero Beach, Fla., died Sept. 14, 2006, leaving his wife, Elizabeth (Higgins), and four children. A real estate developer, he was retired from the family business, Button Associates Inc.

Robert B. Charlton '46 of Prattville, Ala., died July 13, 2006. He leaves his wife, Martha (Chancey), and two children. As a self-employed consulting civil engineer, Charlton designed the structure of many buildings in Alabama, including the local high school.

Daniel J. Goss Jr. '46 of Louisville, Ky., died Feb. 25, 2006. His wife, Doris, survives him. Goss was retired from International Harvester as supervisor of industrial engineering.

Howard F. McCormick Jr. '46 of Windsor, Conn., died Aug. 24, 2006. Survivors include his wife, Judith, and six children. McCormick ran the H. F. McCormick Tobacco Co., then held the post of plant manager at Hi-G Co., and most recently worked as a consultant for Philips Engineering.

Donald L. Nichols '46 of Portsmouth, R.I., died May 26, 2006. He leaves his wife, Thalia (Peterson), and seven children. Nichols retired from the Navy Underwater Systems Center as associate technical director and later served as a self-employed consultant.

Thomas J. Passanisi '46 of Lexington, Mass., died Aug. 27, 2006. He was retired from Raytheon Co. as a principal engineer. Survivors include his wife, Carmela "Millie" (Tringali), and two children.

Robert L. Rocha '46 of Towaco, N.J., died Sept. 4, 2006. He is survived by his wife, Laura (Hatfield), and four children. A Navy veteran of World War II and Korea, he was the retired chief engineer at Picatinny Arsenal, where he also managed the explosive ordinance disposal office.

Nai-Chong Chang '47 of Santa Fe, N.M., died Nov. 28, 2006. He worked for UNISYS Corp.

Robert H. Adams '48 (Phi Gamma Delta) of Lake Forest, Ill., died Feb. 5, 2007. He leaves his wife, Joan (Ireland). He began his career with General Electric and later founded Adams Industries, manufacturer of electrical resistance heating elements, which he sold to a British firm in 1994.

David L. Anthony '48 (Sigma Phi Epsilon) of Columbus, Texas, died March 5, 2007. He leaves his wife, Betty, and two daughters. Anthony, a retired electrical engineer, received a second bachelor's degree from Northeastern University in 1953 and worked for Texas Instruments.

David I. Caplan '48 (Alpha Epsilon Pi, Tau Beta Pi) of Delray Beach, Fla., died April 24, 2006. A patent attorney for Lucent Technologies, he received a doctorate in physics from Purdue University and a law degree from NYU. Caplan was a longtime board member of the NRA who wrote and spoke on widely on gun ownership issues. His wife, Sue Wimmershof-Caplan, survives him.

Robert E. Eilertson '48 (Phi Gamma Delta) of Clearwater, Fla., died May 3, 2006. He leaves his wife, Virginia, and six children. He earned his BS from Boston University in 1995 and was retired from Benefacts Inc. as a regional marketing manager.

Niel I. Fishman '48 (Alpha Epsilon Pi) of Ormond Beach, Fla., died June 26, 2006. He was a senior sales engineer for Philip H. Werner Inc. and co-owner of Lindin Exhibits Inc. Two sons survive him.

Robert A. Bareiss '49 of New Port Richey, Fla., died May 15, 2006. He leaves his wife, Doris, and two children. He was director of process control at Champion International Paper Co.

Ritchie Memorialized in Olin Hall

Sev Ritchie, who passed away in 2004, is still fondly remembered by the Department of Physics as one of WPI's greatest machinists. A member of Skull, Sev dedicated 41 years to WPI and touched the lives of several generations of students, both physics majors and others. A plaque mounted outside the physics machine shop was unveiled Sept. 1, 2006, in commemoration of his service.

Francis J. Bigda '49 (Phi Kappa Theta) of Harwich, Mass., died Dec. 9, 2006, leaving his wife, Evelyn (Stefanik), and a daughter. He was a sales engineer and manufacturers representative for the semiconductor industry.

Thomas R. Carlin '49 (Phi Kappa Theta) of Shrewsbury, Mass., died Jan. 14, 2007. He earned an MBA at Boston University in 1958 and worked for Wyman-Gordon Co. for 39 years, retiring as manager of general purchases and project engineering. Survivors include his wife, Christine (Gasek), and four children.

Edward H. Dion '49 (Theta Chi, Skull) of Mount Holly, N.J., died April 11, 2006. He leaves his wife, Mary, and a daughter. He

was predeceased by a son. Dion retired from Wagner Hohns Ingles as a project manager and continued as an engineering consultant.

Orlando W. "Bud" Foss Jr. '49 of Waycross, Ga., died Sept. 23, 2006. Survivors include his wife, Colleen, two children and a stepson. Foss was the retired president of General Box Co. After retirement he served as an industrial training consultant for Okefenokee Technical College.

Transformations has learned of the death of **William C. Marcoux '49** in 2003. A resident of Nashua, N.H., he taught high school mathematics and wood shop at Newmarket High School.

Donald J. Baer '50 of Old Wethersfield, Conn., died Oct. 10, 2006. A longtime systems safety engineer, he was retired from GTE. His wife, Virginia, (Willard), survives him.

Paul J. Brown '50 (Phi Kappa Theta, Skull) of West Springfield, Mass., died May 5, 2006. Survivors include his wife, Marie (Sullivan), and four children. He was predeceased by a son. Brown was retired from R. E. Phelon Co.

George W. McAllan '50 (Sigma Phi Epsilon) of Waynesboro, Va., died May 3, 2006. He leaves his wife, Viola, and three children. He was retired from New York Telephone Co.

Joseph R. Toegemann '50 (Sigma Alpha Epsilon) of Cranston, R.I., and Bradenton, Fla., died Jan. 1, 2007. A chemical engineer, he worked in research and development for Uniroyal and Goodyear, retiring in 1990. Survivors include his wife, Lois (Schaller), and three children.

Leo J. Verrelli '50 (Phi Kappa Theta) died March 6, 2007, at his Milford, Mass., home. His wife, Mary (Compagnone), died in 2004. Two children survive him. An electrical power engineer, Verrelli was involved in the design of numerous power plants throughout the country before his retirement from Stone & Webster Engineering Co. in 1984.

Norris H. Corey '51 of Sutton, Mass., died Oct. 7, 2006. He leaves his wife, Nancy (Carlson), and four children. He retired from New England Power Co. as chief system dispatcher with 40 years of service.

Class President **Richard E. Ferrari '51** (Phi Kappa Theta, Skull) of Wilmington, Del., died Jan. 6, 2007. He is survived by his wife, Faye, and six children. A son predeceased him.

Melvin D. Savage '51 of Lexington, Mass., died Aug. 22, 2005. He received his dental degree from Tufts University and operated his own practice. Survivors include his wife, Arlene (Marlin), and two children.

Frank L. Briggs '52 (Alpha Tau Omega) of Wilton, Maine, died Feb. 19, 2007. He leaves his wife, Martha (Woods), and three children. He was employed as a sales engineer by Westinghouse Electric Corp. for 43 years.

Allan R. Thayer '52 of Framingham, Mass., died Sept. 13, 2006. Predeceased by his wife, Mary (Tagliaferri), in 1995, he leaves three children. Thayer was retired from Raytheon Co., where he held the post of principal engineer.

Michael J. Cariglia '53 of North Chelmsford, Mass., died Oct. 1, 2006. He leaves his wife, Barbara (Bonoveto), and five children. A longtime electrical engineer, he was retired from New England Power Co.

Vincent J. Boliver '54 (Phi Kappa Theta) died Oct. 21, 2006, at his home in Brooklyn, Conn. He worked as a product manager for G&W Electric Co. His wife, Dolores (Lord), survives him, along with four children.

Robert A. Luoma '54 (Theta Chi) of Charleston, S.C., died Nov. 23, 2006. A retired electrical engineer, he worked for General Electric. He was the widower of Alice (Holl).

Ralph K. Mongeon '55 (Alpha Tau Omega) of Shrewsbury, Mass., died Aug. 19, 2006. He was retired from a 45-year career with Riley Stoker Co. He leaves his son, Kenneth S. Mongeon '95, his wife, Dorothy, and a daughter.

George W. Gilbert '56 of Warren, N.J., died Jan. 12, 2007. He leaves his wife, June (Langevin), and four children. An electrical engineer, he worked for the former Bell Labs and North Carolina Labs.

John W. Braley Jr. '57 (Phi Gamma Delta) died June 30, 2006, at his home in Fairview, Texas. He was the retired president and CEO of Infotechnics Inc. Survivors include his longtime companion, Carla Cerkleski; his four children; and their loving mother, Mary Braley.

Alan J. Carlan '57 (MS) of Rancho Palos Verdes, Calif., died Jan. 29, 2007. He was a self-employed aerospace consultant and the owner of Carlan Associates. In the late 1950s, Carlan enrolled in graduate courses in physics along with his wife, Audrey '57 (MS), who in 1957 became the first woman to earn a degree from WPI. In addition to his wife, he is survived by three children.

William F. LaPointe '57 (Theta Chi) died June 15, 2006, at his home in Kennebunk, Maine. He leaves his wife, Florine (Collaro), and two sons. A graduate of Indiana Polytechnic Institute, he worked for Vishay Sprague for 38 years and spent many years in the Middle East. He retired as international liaison and engineering manager for the Tantalum Division.

Transformations recently learned of the death of **Kenneth D. Chickering '59** in 1984. He earned a master's degree in physics at WPI in 1961 and worked for the University of Connecticut in Storrs.

Robert W. Hoag '59 of Attleboro, Mass., died May 31, 2006. He was president of Walton & Lonsbury. Survivors include his wife, Mary (O'Keefe), and two children.

Wilford A. Sutthill Jr. '59 of Seal Rock, Ore., died June 25, 2006. He leaves his wife, Sarah (Chandler), and three children. He earned a master's degree in civil engineering at Drexel Institute of Technology and worked as plant engineering manager for Dakota Gasification Co.

John T. Manchester '60 (Phi Sigma Kappa) of East Bridgewater, Mass., died Nov. 11, 2006. He is survived by his wife, Lorena (Douglas), and three children. Manchester

received an MBA from Northeastern University in 1968. He retired from Exergy Corp. as vice president in 2004.

Franklin I. Siegel '60 of Chelmsford, Mass., died March 7, 2007. A pioneer in the field of hybrid microelectronics, he worked for Teledyne and Raytheon, where he made notable contributions to the Apollo space program and numerous missile systems. He was the father of Andrew Siegel '89; he also leaves a daughter.

Bradford S. Cushing '61 (Phi Sigma Kappa) of Exton, Pa., died Oct. 24, 2006. He leaves his wife, Mary, and two sons. A specialist in the field of hazardous waste management, he was vice president and principal of Applied Environmental Management Inc.

Transformations has learned of the death of **Robert G. McDonald '62** (Tau Kappa Epsilon) in 2000. He lived in Porterville, Calif.

William H. Reinert '62 (Tau Kappa Epsilon) of Ore City, Texas, died Feb. 16, 2007. He was the owner of Advertising Concepts, along with his wife, Diane, who survives him. He was active on the Ore City Fire Department and was named Volunteer of the Year in 1980.

Marcel H. Clavien '63 (Phi Kappa Theta) died Nov. 20, 2006, at his home in Sutton, Mass. He leaves his wife, Mireille (Bruneteau), and two children. After receiving an MBA from Stanford University he pursued a career in the cable and wire industry, most recently serving as vice president of corporate purchasing for Cable Design Technology of Worcester. An active member of his Class Board of Directors, he was instrumental in organizing the 40th Reunion and gift campaign.

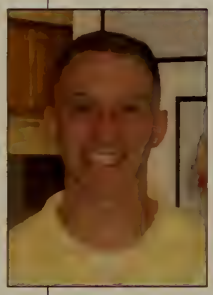
Arthur F. Darley '63 (Tau Kappa Epsilon) of Southbridge, Mass., died Sept. 15, 2006. He spent his career in civil service and was most recently a district project engineer for the Massachusetts Highway Department.

Donald G. Gregoire '65 of Merritt Island, Fla., died May 8, 2006. He leaves his wife, Claire, and four children. He was a retired systems engineer for Lockheed Martin.

Roger J. Armata '66 (Phi Sigma Kappa) of Torrington, Conn., died Oct. 12, 2006. Survivors include his wife, Sally (Lagowski), and two children. A manufacturing engineer, Armata worked for The Torrington Company for 28 years and retired from ACME Packing Corp. as manufacturing services manager.

Transformations has learned of the death of **Donald R. Shurtleff '68** in 2004. A professor emeritus of computer science at the University of Missouri-Columbia, he was the husband of Loramel (Wagner) and had three children and four stepchildren.

Ryan Jones '06, Victim of Roadside Bomb in Iraq



First Lt. Ryon Potrick Jones '05 died May 2, 2007, in Boghdod, of wounds he suffered when his vehicle struck o roodside bomb. He wos ossigned to the 4th Brigode Special Troops Bottolion, 4th Brigode Combot Team, 1st Infontry Division, from Fort Riley, Konsos. As o freshman ot WPI, Jones joined the Army ROTC progrom on on Army Scholorship ond begon his service with the 1st Infontry in December 2005. He went to Iroq in Februory 2007. He wos the only child of Kevin ond Eloine Jones of Westminster, Mass.

"It is o terrible loss of humon life, youth, energy, ond educotion," soid Rojib Mollick, ossociote professor of civil ond environmentol engineering ond odvisor of Jones's MQP. "Ryon is o student I will remember forever. I will remember him for his kind ond gentle noture ond his ever willingness to help others."

Howard J. Braley '66 (Theta Chi) of Placerville, Calif., died Sept. 30, 2006. He earned an MBA at Boston College and served in the U.S. Air Force for 20 years, retiring as a lieutenant colonel. He then joined Aerojet, where he worked as a test manager for rocket engines until his death. He is survived by his wife, Cynthia (Adams), and two children.

Dennis D. Murphy '66 of Houston died May 15, 2006. He was a lecturer in computer science and artificial intelligence at the University of Houston-Clear Lake. He previously taught at NOVA University in Florida. Survivors include a son-in-law, nieces, and nephews.

Marshall A. Kaplan '67 (Alpha Epsilon Pi) died July 27, 2006, at his home in Worcester. A research chemical engineer, he worked for the U.S. Navy Dept. and later for Lincoln Laboratories. He is survived by two sons.

Burton F. O'Rourke '67 of Key Largo, Fla., died Aug. 16, 2006. He leaves his wife, Audrey (Davis), and two children. He was a chief engineer for Norton Co.

Richard E. Broggi '68 (Phi Sigma Kappa) of St. Simons Island, Ga., died June 21, 2006. A longtime construction supervisor of marine projects, he helped build many major U.S. highway interchanges, as well as roads in Puerto Rico and the Bahamas. Survivors include his wife, Ami (Rigdon), a son, and two stepchildren.

Transformations has learned of the death of **Rashmikant C. Shelat '69** of Oradell, N.J., in 2003. He was a senior field engineer for the New York City Dept. of Design and Construction.

Transformations has learned of the death of **John Manzo '73** (MSCS) in 2004. He was vice president, R&D, for U.S. Robotics in Skokie Ill. He and his wife, Patricia, had one child.

Linda M. Pusateri '74 (MNS) 61, of Spencer, Mass., died Oct. 11, 2006. She leaves two sisters. A graduate of Worcester State College, she taught mathematics and science at North Brookfield High School and later worked for Riley Stoker Corp.

Paul M. Houlihan Sr. '75 (Phi Sigma Kappa) of Scottsdale, Ariz., died unexpectedly on Feb. 16, 2006. He was regional sales manager of the western division of Nallatech. Survivors include his two sons.

Richard C. Dudley '76 (SIM) of East Brookfield, Mass., died Feb. 8, 2007, leaving his wife of 42 years, Gloria (Conway). He was a 22-year Navy veteran and instructor, who retired in 1965 as master chief machinist mate. He then served as assembly superintendent for Morgan Construction Co. for 25 years.

Paul J. Duquette '76 of Dudley, Mass., died Feb. 1, 2007. He worked at Mantrose-Haeuser Co. Inc. He was the husband of Paula (Kaczynski) and the father of Jeffrey Duquette '91 and Jaime Duquette '94, who survive him.

James F. Falcone '76 (MSM) of Holliston, Mass., died Dec. 2, 2005, at age 79. He leaves his wife, Gloria (Cerveny), and two daughters. He was retired from Natick Labs.

Robert R. Jussaume '76 (SIM) of Dudley, Mass., died Oct. 15, 2006. He was 74. He is survived by his wife, Eileen (Gardiner), and three children. Jussaume was retired from Hyde Tool Co. as personnel director.

Gregory A. Scott '77 of Shrewsbury, Mass., died Sept. 3, 2006. He worked for Update Logic and had published several technical articles. He is survived by two children; his companion, Elaine Moreland; and his former wife, Sandra (Clemens).

Willie Lee Hoover '79 (MSM) of Terry, Miss., died Jan. 4, 2005, at age 79. He was retired from Raytheon Co.

David L. Arnold '80 (MSM) of Norton, Mass., died Jan. 26, 2006. He was 60. He leaves his wife, Lynn (Durette), and four children. Arnold taught mathematics at North Attleboro High School for 34 years and later worked for J. E. Case Co. and Clinical Science Lab.

Steven J. Kahn '80 of Sewickley, Pa., died June 15, 2006, while vacationing with his family in Tuscany, Italy. He leaves his wife, Mary Frances, and two daughters. Kahn was a systems analyst with TeleCove. The Steven J. Kahn Award is presented annually to outstanding senior members of the WPI Glee Club to honor contributions, commitment, and unwavering loyalty to the organization.

Transformations has learned of the death of **Xiaojun Zhang '87** (MSBB) in 2003, at age 43. She was a microbiology professor at Lakeland Community College. She and her husband, Weijun Ling, had one daughter.

Robert A. Cupolo '88 of Bristol, R.I., died Jan. 5, 2007. He leaves his wife, Jennifer (Morrison), and two children. Cupolo received a master's degree from Boston University and worked for Raytheon Corp. for 20 years.

Ronald "Kirk" Hayden '89 (Phi Gamma Delta) of Hingham, Mass., died Sept. 7, 2006. He is survived by his parents, two brothers, and a sister. He worked as a sales manager for New England Controls and Jack Conway Family Group.

Lawrence W. Harvie Jr. '93 (MSCS) of Lewiston, Maine, died May 13, 2006. He was 41. He worked as computer analyst and programmer for Per-Se Technologies. Survivors include his father, a sister, and a brother.

Rudy B. Soriano '96 (Tau Kappa Epsilon) died Jan. 2, 2005, after a recurrence of cancer. He leaves his wife, Gina Pulido-Soriano, his parents, his brother, Carlo Soriano '97, and a sister. He worked for the J. D. Edwards consulting firm and lived in New York City.

Kenton D. Boltz '00 (MBA) of Sturbridge, Mass., died Nov. 21, 2006. He was 45. He leaves his wife, Brenda (Redman), and three children. He was head of the Sturbridge office of Edwin Jones Investments.

Brandon M. Kilgore '06 of Sacramento, Calif., died Jan. 9, 2007. He was the husband of Kimberly (Ware) Kilgore '06 and the brother of Ryan Kilgore '01. He is also survived by his parents and grandparents. He was a test engineer for 3com.

Letters

Notes on a View *(continued from page 3)*

as circa 1933. It must have been taken after 1935. It shows a soccer goal in what is now the Quadrangle. In the fall of 1935, I played my last soccer game. The field then was end-to-end with the football field along Park Avenue. I think it was moved up the hill the next year.

You correctly identify Stratton Hall and the Atwater Kent Labs, but at the time of the photo they were designated, respectively, as the Mechanical Engineering Building and the Electrical Engineering Building. It was some time later that they acquired their current names.

It is, I am sure, the oldest aerial photograph of the campus, but not the oldest aerial picture. About 1910, Richard Rummell, a well-known artist, created a hand-engraved copperplate (at right) depicting the then WPI campus. He viewed the campus from a tethered balloon about 300 feet above ground. In 1987 I purchased one of a limited edition of hand-pulled prints from the Rummell etching, which now hangs in our den.

John R. Brand '36
Hockessin, Del.

Time Capsule

Gordon Library Turns 40

Prior to 1967, when the George C. Gordon Library opened its doors, WPI maintained branch libraries for each academic department and a general reference library, housed first in Boynton Hall, above (circa 1920), and later in Alden Memorial. But in 1964, WPI received a $5 million bequest from Ohio businessman and distinguished alumnus George Crompton Gordon (class of 1895). Today, the library boasts holdings of over 270,000 volumes of books and periodicals, access to over 70,000 electronic journals, books, and databases, and special collections of more than 2,000 linear feet and 4,000 volumes of archival materials and rare books. Since opening 40 years ago, new study and instructional facilities—including the multimedia Tech Suites, Movie Lab, and Anderson Instruction Labs—have been added. The library also hosts eight art and history exhibits a year in its two display areas, the Class of 1941 Gallery and the George Gladwin Art Gallery.

See more photos and read about upcoming anniversary events at wpi.edu/+library/40.

Graduate Studies in Science & Engineering

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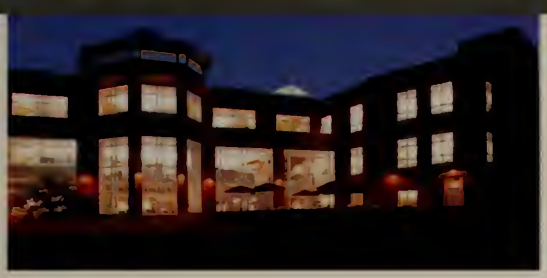
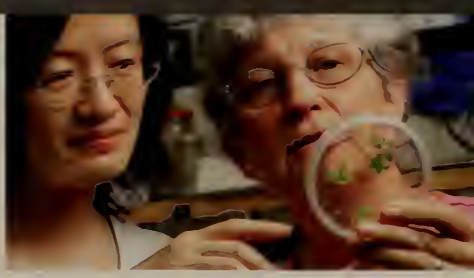

WPI's Science and Engineering Graduate Programs feature world-class faculty and facilities. WPI's graduate students and faculty work closely together in a number of cutting-edge research areas, leading to breakthroughs and innovations in such fields as biotechnology, fuel cells, nanotechnology, and information security. Opportunities for fellowships, teaching, and research assistantships for full-time students are available.

Graduate Programs at WPI:

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- Chemical Engineering
- Chemistry & Biochemistry
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- Materials Science & Engineering
- Mathematical Sciences
- Mechanical Engineering
- Physics
- Social Science & Policy Studies

The following programs are available online:
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Information Sessions

Thursday, August 23, 6 p.m. • WPI Campus Center
Thursday, September 27, 6 p.m. • WPI Campus Center
Register to attend at www.grad.wpi.edu or call 508-831-5301

WPI

The Gift of Opportunity

"I am so grateful for all that I have been able to absorb at WPI, in both academics and in my social life. WPI gives you so many opportunities you won't find at other schools. In much the same way, financial aid has given me the opportunity to be part of something as incredible as WPI."

—Krystal Parker '08, aerospace engineering major

During the 2006–07 academic year, 67 percent of full-time undergraduate students received some form of need-based scholarship or grant. By making a contribution to the WPI Annual Fund, you are opening the door to opportunity for talented and deserving students, like Krystal Parker.

Thank you for your gift—
your gift of opportunity.

To make your gift today, visit

www.wpi.edu/Admin/Giving/

WPI transformations

SPRING 2008

A JOURNAL OF PEOPLE AND [illegible]

The Women *of* WPI

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About the cover

Shruti Pai '04 works in a biamechanics lab at the University of Washington. Phato by Mel Curtis. Archival images courtesy af WPI Library Archives. Caver cancept by Pamela Mecca.

This page: Lesley (Small) Zorabedian and Jayne Rasetti were the first female undergraduates ta enroll at WPI in 1968 when the Institute became caeducational.

WPI transformations

VOLUME 10[illegible] NUMBER 1
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Starting Point

VOLUME 105, NUMBER 3, SPRING

WPI SPRING 2008 transformations

"Life is not easy for any of us. But what of that? We must have perseverance and above all confidence in ourselves."

—Marie Curie

Thirty years before WPI went coed, a young woman in New York City aspired to be a doctor. She was interested in helping others, and, more important, she excelled in math and science. But there was just one problem.

"Nice Jewish girls don't become doctors," her father, a Polish immigrant, decreed.

Though she was accepted to medical school, the young woman wouldn't disobey her father. Thus, she enrolled in a nursing program and enjoyed a long, successful career as an RN, later earning a master's degree in chemistry.

My family always said that this woman—my grandmother, my Bubbe—was ahead of her time. In high school, when women's sports were far less common than they are today, Bubbe not only played sports, but she earned a sweater. Women rarely "sweatered" in the 1930s since, at least in her high school, girls were required to letter in three sports to earn the sweater. (Incidentally, boys needed only one sport.)

My generation has been lucky in that, on the whole, we haven't encountered the kind of gender discrimination our mothers and grandmothers faced. As Terese Kwiatkowski '83 explains (see story, page 25), "I'm sure it was easier for me to overcome gender issues because of the women who preceded me, and that it's easier for those who've joined the profession after me."

Just as I look to my grandmother as a source of inspiration, I imagine that she, too, would be inspired by the very women who comprise this issue of *Transformations*, which celebrates 40 years of coeducation at our university.

In honor of this anniversary, we've included just a sampling of stories of the inspiring and impressive work of our alumnae. We talk with Lesley (Small) Zorabedian '72, one of the first women to step foot on campus as an undergraduate student, and others about the early years of coeducation here.

We tell the stories of alumnae in various stages of their careers—Kwiatkowski, Judy Nitsch '75, and Anni Autio '82 discuss their successful careers in civil engineering, a field still dominated by men. Lisette Manrique '03 (MS'05) and Shruti Pai '04 (MS'05) are poised to make a difference in the biomedical engineering field. And we talk with women students and faculty about the important research and activities happening on campus today.

True, the alumnae in this issue of the magazine are singled out because they're women. But—and this cannot be understated—we acknowledge and celebrate their successes and accomplishments regardless of their gender.

I like to imagine that, if my Bubbe could have met them, she would have been blown away by the impressive careers these alumnae have had, or are just beginning. I picture her listening intently to their stories, and conveying the simple words of wisdom that she often had for my sister and me: "Enjoy," she would say, no matter the occasion. "Just enjoy."

With that, I hope you, too, enjoy.

Thanks for reading.

Charna Westervelt, *Editor*

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WPI

Letters

Gem of a Read

Just a quick note to tell you that I loved the current edition of our school publication. It came yesterday. I properly disposed of the other mail and then picked up *Transformations*. Two hours later, I finished reading it from cover to cover—just a real gem. It's so full of good, interesting school news.

I can't wait for the next issue.

Edwin Campbell '43
Falmouth, Maine

Moved to Reconnect

Last summer's *Transformations* contained approximately 150 obituaries—more than six pages' worth—and for the first time I read them all very carefully. I found the synopsis of many distinguished careers inspiring and couldn't help wondering the degree to which their WPI education had made these careers possible.

It was shocking to me to read of the death of so many of my classmates. It's unfortunate we didn't have a chance to communicate with those we knew quite well before they passed away, which, in my case, included many Phi Kappa Theta fraternity brothers with whom I lived for three years.

It would be a kick to hear from my classmates. Care to give it a shot? I'll watch the mail! [See page 36 for full note.]

Don Lewis '51
Bethel, Conn.

Entrepreneurial Interests

Congratulations to *Transformations*. I enjoyed your summer issue, in part due to my interest in entrepreneurship. Continued good wishes to the magazine.

Don Berth '57
Holden, Mass.

Donald F. Berth established the WPI Entrepreneurs Collaborative (now the Collaborative for Entrepreneurship and Innovation) following his decade tenure as vice president for university relations. —Ed.

Furry Friends

Editor's note: Transformations received an outpouring of letters, emails, and other feedback after we ran the article "Breeding Business on Fertile Ground," which featured the story of Jennifer Lutz '94, an alpaca breeder in Vermont. We were both surprised and delighted to learn that Ms. Lutz is not the only alpaca-breeding WPI alum. Mike Busky '78 and his wife, Laura, own North Brook Farm Alpacas in Berlin, Mass.

Alum-what?

We offer this refresher course on the use of words denoting graduates…

alumna *n. sing.* [uh-luhm-nah] A female graduate of a particular school, college, or university

alumnae *n. pl.* [—nee] More than one female graduate

alumnus *n. sing.* [—nus] A male graduate OR generic (either male or female)

alumni *n. pl.* [—ni] More than one male graduate OR generic

Alumnus and alumna come from Latin and preserve Latin plurals. WPI usually uses alumni for mixed plural (men and women).

A message from President Berkey

Expanding the WPI Portrait

Chronicling the first 100 years of WPI's history, the marvelous book *Two Towers* concludes with a portrait of the then-current students of 1965. "These were the men," author Mildred McClary Tymeson writes, "who would be doing the world's work for the rest of the twentieth century." How quickly times change! Just three years later the arrival of women undergraduates would forever alter that portrait, and today it is the men and women of this university who are not only doing the world's work, but helping to lead much of the world's progress in the twenty-first century.

When I consider the early years of coeducation on our campus, I cannot help but wonder about the brave young women who stepped out of their parents' cars and into WPI history. Before ever venturing into a WPI classroom, these students exhibited the pioneering spirit and independence of thought that have characterized this university since its inception. Today's women undergraduates still do. Deeply individual, they remain united to their predecessors through their thirst for knowledge, love of problem solving, and genuine desire to make a better world.

As the stories in this issue of *Transformations* illustrate so beautifully, women have enjoyed tremendous success at WPI—and beyond our university's borders. Whether heading corporations, contributing breakthrough advances for the treatment of human diseases, or being recognized as one of the "New Faces of Engineering," WPI's alumnae are making their mark as innovators and leaders across the country and around the world. Of course, this comes as no surprise to a university that was founded on the principle of providing talented people the opportunity to put their knowledge to work in creative and productive ways.

Since those early days, WPI has come a long way in achieving its aims for a fully integrated and supportive campus—and yet there is still much more we can do. I am delighted that several of the goals set forth in our newly revised Strategic Plan pertain to the experience and achievement of women at WPI. Chief among these is a significant increase in female enrollment, which currently stands at 26 percent of the undergraduate community. We are also striving to make WPI a leader in career opportunities for women faculty and staff through stronger outreach and mentoring programs, a review of the tenure and promotion processes to ensure equitable treatment, and the recruitment and retention of significantly higher numbers of outstanding female faculty and staff.

That WPI achieve these goals is vital both for the future of the university and for the leadership we can provide to others. In a world in which millions of women are still denied basic human rights, institutions like WPI, which are exemplars of high achievement, must celebrate the accomplishments of strong women students, faculty, and staff, as well as alumnae. As a university, we must foster a welcoming environment and encourage more young women to pursue careers in science and engineering. And as the United States faces mounting science and engineering competition from other nations, we must identify and make full use of *all* of our talent.

On this historic anniversary, we honor the pioneering individuals who helped WPI chart a new course of coeducation, and we recognize the vast changes that have occurred at WPI since so many gifted women have become full participants in every aspect of the life of the university. When the history of WPI's next 100 years is written someday, I have no doubt that the inclusion of so many talented women in the WPI community will unquestionably take its place among the most important advances in our university's continuing evolution.

In a world in which millions of women are still denied basic human rights, institutions like WPI, which are exemplars of high achievement, must celebrate the accomplishments of strong women students, faculty, and staff, as well as alumnae.

CampusBuzz

GE's Immelt Named Commencement Speaker

Jeffrey R. Immelt, chairman and CEO of General Electric Company, will deliver the address at WPI's 140th Commencement exercises May 17. Immelt was appointed the ninth chairman of GE in September 2001; since then, he has led the legendary 130-year-old company to consistent economic growth around the world, with an average of 10 percent annual financial growth over the past five years.

Clinton's Voice Heard at WPI

Senator Hillary Clinton chose WPI's Alden Memorial as one of 20 national satellite simulcast locations for her "Voices Across America: A National Town Hall." The first hour of the 90-minute event was broadcast on the Hallmark Channel, and those attending had the opportunity to ask questions to the presidential hopeful live via satellite. Senator Clinton anchored the Town Hall from New York City; Massachusetts Congressman Jim McGovern served as the local host.

Students Honored for Making a Difference

WPI seniors Jason Frey, Ryan Kendrick, Jodi Lowell, and John Rothermel traveled to Windhoek, Namibia, where they helped residents of nearly 4,000 unelectrified settlements develop renewable energy businesses. For their Interactive Qualifying Project, which won first place in the President's IQP Awards competition, they interviewed dozens of local families about their energy use, resulting in a toolkit for local entrepreneurs to assess possibilities for introducing renewable energy businesses to the area. Such businesses would generate income and bring accessible energy services to communities without electricity.

Advised by Robert Krueger and Fred Looft, this IQP was one of five presented to a panel of judges at the annual contest held in January. Other award winners:

Second Place: "Noise Data Farming for the City of Boston," Shannon O'Toole, Brandon Finzel, Justin Perron, Jacob Russell (advisors: Chrysanthe Demetry, Kevin Clements)

Second Place: "HIV/AIDS Prevention Education: A Look at the HIV/AIDS Awareness Activities at the Polytechnic of Namibia," Danielle Dionne, Amanda Tichy, Jessica Sullivan-Keizer, Derrick DiConti (advisors: Robert Krueger, Fred Looft)

Third Place: "Demand Response Programs in the Greater Boston Area," Michael Irace, James Chryssanthacopoulos, Chukwunomso Agunwamba, Eyuel Abebe, Muzhtaba Tawkeer Islam (advisors: James Doyle, Alex Emanuel)

Third Place: "Developing a Strategy to Improve Solar Home System Sustainability in Rural Thailand," Gabriel Baldwin, Benjamin Childs, Carolyn Hunter, Victoria Urrea (advisors: Bland Addison, Seth Tuler)

Schilling Plays Ball with WPI

Red Sox pitcher Curt Schilling paid a surprise visit in February to participants in GameJam, WPI's 38-hour design marathon for aspiring video game developers. The major league pitcher dropped in with his son, Gehrig, to find students working on games for the first Massachusetts Game Challenge, sponsored by Schilling's video game development company, 38 Studios, in Maynard, Mass.

During his 90-minute visit in Atwater Kent Labs, Schilling chatted with students and got a sneak peak at their games in progress. He also compared notes with them on favorite video games and game platforms, and talked about 38 Studios' approach to game development. Many of the WPI students who took part in GameJam are enrolled in WPI's pioneering, first-in-the-nation Interactive Media and Game Development major.

Students Solve "Great Problems"

It's not every day that WPI visitors can learn from students about air pollution in China, fish stock depletion in Tanzania, and the feasibility of various photovoltaics systems. Or, maybe it is.

When Eric Hahn '80 came to campus last fall, he chatted with some first-year students about these very topics. The computer scientist and entrepreneur whose work has helped shape the Internet returned to his alma mater to visit with the 88 first year students who had completed the university's new Great Problems Seminars, a pilot program he helped start to give first year students real-world experience through hands-on project work. In two seminars—Feed the World and Power the World—students addressed global problems focused on food, health, and energy resources.

In speaking with the students about their projects, Hahn was immediately impressed by their fresh ideas and thinking. Though not all of their proposed solutions were immediately implementable, he observed, "it was exciting to see their different perspectives."

No. 1

MBA Program Tops National Rankings

***BusinessWeek* ranked WPI No. 1** in the Northeast and No. 9 in the nation for its part-time Master of Business Administration program. Nationally, it ranked No. 5 in student satisfaction and No. 4 in academic quality. The Department of Management and Office of the President hosted a special event in April to celebrate the ongoing success of the MBA program.

Ronald Prinn, internationally recognized expert on global climate change, speaks at WPI's third annual University Lecture in December. Prinn is professor of atmospheric research at MIT.

Grand Opening for Gateway Park

WPI officially opened its new Life Sciences and Biaengineering Center at Gateway Park in September, with a ribban-cutting ceremany held at the new warld-class facility. In October, RXi Pharmaceuticals (founded by Nabel Laureate Craig Mello) signed a lease to lacate in the new building, with the aptian ta became the lead tenant af a future 100,000-square-foot building planned far canstructian at Gateway Park.

Gateway Park recently was given its own street, Washburn Way, named far Ichabad Washburn, legendary entrepreneur and a WPI faunder. WPI's building has received several honors fram the federal government, including the prestigious national Phaenix Award, and the Excellence in Economic Development Award far Urban or Suburban Develapment from the U.S. Department of Cammerce.

$6 Million from Alden Trust

WPI has received a $6 million grant from the George I. Alden Trust for the renovation and integrotion of severol undergroduote loboratories in Goddord Hall into the new Undergroduate Life Sciences Loborotory Center at WPI. The gift, the largest in the Alden Trust's 95-yeor history, is the second given to WPI by the Trust in recent yeors for the purpose of improving undergraduote ocodemic facilities. In totol, the Alden Trust hos contributed $11 million toward WPI's mission of improving life sciences educotion at the undergroduote level.

When completed, the center will become the university's moin facility for undergroduote teoching and research in biology and biotechnology, biomedical engineering, chemistry ond biochemistry, ond chemical engineering. It will promote cooperotion ond collaboration across the disciplines, and support increosed enrollments in engineering ond science progroms. Work on the renovotion will begin in July; its opening is slated for C-Term 2009.

WPI Mourns Loss of Emeriti Professors

Roger R. Borden '61, Mechanical Engineering, died Oct. 29, 2007, at his home in Worcester. Borden held a BS in mechanical engineering and a BS in general engineering from MIT, as well as an MS in mechanical engineering from WPI. He was an expert on reducing automotive emissions and advised WPI students on their designs for a national Clean Air Car Race. A retired pastor of the United Methodist Church, he studied at Assumption College and Andover-Newton Theological School. Borden's wife, Constance Elin (Linberg), died in April 2007. He is survived by his son, the Rev. Andrew H. Borden, his daughter, Meredith Ann Borden, and three granddaughters.

Kenneth E. Scott '48, Mechanical Engineering, founder of the Instructional Media Center at WPI, died Jan. 3, 2008, at his home in Ft. Myers, Fla. An advocate of the potential for new technologies to improve learning, he created and directed the Instructional Media Center (now the Academic Technology Center) and the Computer-aided Design Laboratory. An active member of the WPI Alumni Association, he served as its first faculty representative and remained a loyal supporter. His honors include the 1998 William R. Grogan Award for Support of the Mission of WPI, the WPI Board of Trustees' Award for Outstanding Teaching, and the inaugural endowed George I. Alden Professorship in Engineering. The 1970 WPI yearbook, *The Peddler*, was dedicated to him. Scott is survived by his wife, Elizabeth (Oldham), and three children.

See page 47 for the obituary of Laddie Berka, professor emeritus of chemistry and biochemistry. Complete obituaries may be read at www.wpi.edu/News/Memoriam.

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WORCESTER POLYTECHNIC INSTITUTE 1865 WPI

By Michael W. Dorsey

Wireless Research Earns CAREER Award

Simple wireless networks—from the Wi-Fi hotspot at your local Starbucks to the cellular network that carries your phone calls—have become commonplace over the past decade. But there are more complex varieties of wireless networks that are only just beginning to find real-world uses.

Sensor networks, for example, consist of hundreds or even thousands of small wireless nodes (some as tiny as specks of dust) that can sense the environment—monitoring temperatures, listening for sounds, detecting vibrations. First used by the military to locate enemy submarines or track troop movements, sensor networks are being considered for applications as diverse as sniffing for radiation leaks at nuclear power plants, guarding paintings in museums, and monitoring traffic flow on highways.

Wenjing Lou holds an example of a sensor node, available commercially, consisting of a low-power, high-performance microcontroller, an integrated onboard wireless transceiver, and integrated humidity and temperature sensors. Lou's research focuses on providing more reliable and efficient communication methods among those nodes when they are deployed on a large scale.

Finding the most efficient and reliable ways to move data through these weblike networks is one focus of the research of Wenjing Lou, assistant professor of electrical and computer engineering at WPI. Her early success in this field recently won Lou a five-year, $450,000 National Science Foundation CAREER Award—the agency's most prestigious award for young faculty members.

Sensor networks differ from home or office networks, in which signals from a laptop jump to a nearby access point in a single hop (the signals travel the rest of the way over wires). In a sensor network, most of the nodes may be far beyond the reach of an access point. Their signals must hop wirelessly from node to node to reach their ultimate destination. Researchers call these multihop networks.

With her CAREER Award, Lou is conducting a comprehensive study of a novel way of managing traffic in multihop networks. Typically, a node that needs to send a packet of information down the line looks at its neighboring nodes and sends the packet to a single node that appears to have the best chance of passing the signal along to the next node in the chain. The strategy is risky, since momentary signal interruptions may keep the packet from getting through.

Lou is looking into another strategy called opportunistic routing, in which the node sends the packet simultaneously to several neighbors. After receiving the packet, each node, in turn, assesses the state of the network and figures its chances of getting the packet through to its neighbors. The node with the highest probability of success gets the nod.

The basic idea is simple. Putting it into practice has proven difficult, however, and little is known about how to design networks to take full advantage of the technique. Lou will, for the first time, produce a framework that shows the optimum way for nodes to share information, to determine the best path for a data packet, and so on. From this framework will grow models and protocols that will help network designers use opportunistic routing effectively.

"Ideally, we want to be able to make predictions about the end-to-end performance of a network using opportunistic routing," Lou says. "With this knowledge, we can help create more reliable networks, where information gets through more quickly, with fewer retransmissions."

The **Big** Picture

By Lorraine U. Martinelle

Balancing Act

Katarzyna (Kasia) Koscielska '08 has big dreams. But she's no daydreamer.

"I hope to contribute something to society," she says, "by working for an international nonprofit organization through the study of genetics of diseases, cancer, HIV, or other illnesses that plague people."

At 21 years old, Koscielska has already figured out how to balance her life goals with being a mom, a community-recognized volunteer, and a WPI student double majoring in biology/biotechnology and biochemistry.

So, what's her secret? "I don't have one," she admits. "I just do what needs to be done, as well as I possibly can. That's all."

The Women's Initiative of the YWCA in Worcester recognized that willing spirit last fall with its Meredith D. Wesby Young Leader Award. On campus, she has been involved in myriad activities. She's a peer educator for sexual assault prevention. She's a student ambassador. And as academic coordinator for WPI's Camp Reach summer program last year, she's a role model for middle-school girls interested in math and science.

Kasia Koscielska arrived at WPI in 2004 straight from Poznan, Poland—with her toddler-aged daughter, Maja, in tow. Her life partner (and Maja's father), Artur Janc '07, is now pursuing a master's in computer science at WPI.

But getting to WPI wasn't the easiest road. Koscielska, who speaks fluent English, took her high school final exams when she was eight months pregnant, and her Polish university entrance exam only a week after giving birth. While caring for her newborn, she took the SATs and was awarded the WPI Presidential Scholarship.

Her next step? Getting accepted into a PhD program in the biological sciences.

"My daughter and my partner are what keep me going and striving to be my best," she says. "I think I have succeeded, thanks to the combination of values that I was brought up with and my own curiosity and diligence."

Tony Rinaldo

Explorations

By Eileen McCluskey

Laundry for All

In Monwabisi Park, a densely packed settlement of 15,000 people on the outskirts of Cape Town, South Africa, women haul five-gallon containers of water from public spigots to the one-room shacks they call home. Outside their small dwellings, the women talk together as they wash the laundry for their families. They make the exhausting trudge to the public water pipes two or three times for each load of laundry, tossing the used water onto the arid soil of the streets because there is nowhere else to dispose of it. The water forms puddles where insects breed.

These poor living conditions—legacies of the apartheid era—are typical in South Africa. In Monwabisi Park, as in many settlements outside Cape Town, five people often share a single tiny shack. Few families enjoy indoor plumbing.

WPI students Lauren Alex '09, Jessy Cusack '09, Augustina Mills '09, and Alejandro Sosa-Boyd '08 arrived in Monwabisi Park last December to complete an IQP that they hoped would ease life for the people of this close-knit community.

"Through discussions with our sponsor, Dianne Womersley of the Shaster Foundation, and by talking with community residents, we quickly confirmed that a communal laundry facility would serve people's needs well," says Scott Jiusto, director of WPI's Cape Town Project Center and assistant professor in the Interdisciplinary and Global Studies Division. The project also met the Shaster Foundation's and the IQP project's sustainable development requirements, Jiusto says.

The result, a fully functional and sustainable laundry facility, has been wildly successful. "There has been great celebration from all the women in the vicinity over the new laundry," Womersley says. "It is seen as a great labor-saving installation."

The new laundry facility is just the latest addition to a collection of bustling community buildings called the Indlovu Centre, which was created in 2006. From the beginning, the Monwabisi community worked cooperatively with Womersley to raise funds and participate in building the Indlovu Centre. Today, the Centre's crèche (daycare center), community clinic, soup kitchen, guest house, and community garden offer the basic services most needed in Monwabisi. The Centre also runs programs that offer productive activities for local children, teach unemployed mothers marketable crafts, improve literacy and professional skills, and promote good personal and environmental health practices.

As it grows, the Indlovu Centre holds to principles of resource conservation and waste management. An earthworm toilet converts waste to fertilizer for the community garden, while biogas digesters collect methane from natural decomposition. Solar ovens made with cardboard boxes and aluminum foil are used in place of gas stoves, and a 5,000-liter tank collects rainwater from the roof of the crèche for use during the dry season.

"The first time we got water running through the pipes and into the sinks, all the kids came running to see what was going on. The women came, too. We were all excited."

—Lauren Alex '09

Eco-laundry

The WPI team worked with Monwabisi's Xhosa people to design and build the laundry facility. Using rainwater harvested from the roof of the Indlovu youth center, and a greywater irrigation system that waters the small fruit grove across the street, the facility is designed to operate largely without municipal water and to emit no waste.

Water for the laundry facility comes from two 1,500-liter storage tanks, which stand on a raised platform behind the youth center. Beneath these tanks are two identical containers to catch overflow during winter months when, the WPI students estimate, rainfall will exceed the laundromat's water needs.

PVC tubing, painted black to make best use of solar heating, carries the stored water along the side of the youth center to the laundry station in front. Four stainless steel wash basins—two sets of two, facing one another—with individual taps and inclined ribbed edge are used for washing. Over the tubs, a roof of translucent corrugated plastic provides shade. As the greywater drains from the tubs, it is carried by tubing that runs under the adjoining street, and waters three banana and three pear trees through slow-drip irrigation.

Throughout the IQP's painstaking design and construction phases, local liaisons worked alongside the WPI team. In addition to Womersley, these collaborators included Michael Tremeer, owner of the Eco-Beam construction company, Patrick Carrigan, an Indlovu Centre volunteer, community leader Buyiswa Tonono and her husband, Opah Tonono, and his team of laborers.

Children and teens who frequent the Indlovu youth center also pitched in daily during construction. "About five teenagers helped us almost every day," says Alex. "Little kids, too, handed us tools and did whatever they could to contribute to the effort. It was great to hang out with them."

While only the women of the local Xhosa community do laundry, no such gender roles separated the WPI students. Alex and Mills worked alongside Cusack and Sosa-Boyd to dig trenches for pipes, realign roof gutters for rainwater collection, and build platforms for the water tanks. As Cusack notes, "It wasn't two guys and two girls. It was four students trying to do a job."

Local miracles

"The first time we got water running through the pipes and into the sinks," Alex says, "all the kids came running to see what was going on. The women came, too. We were all excited."

As part of their final presentation, the students conducted a walk-through of the laundry station. Xhosa women volunteered to wash clothes, demonstrating the importance of using biodegradable soap and turning off the taps to conserve water. "Everyone seemed impressed and happy with the results," says Cusack. "And the kids thought it was the coolest thing ever."

Cool cash, too, will likely result from the new laundry facility. "The women love the idea of making money by doing laundry for Indlovu Centre guests for a small fee," notes Jiusto.

Even more, the laundry facilities will be replicated around Monwabisi Park. "The students' plan will serve as a blueprint for all the other areas where we intend to build more community centers—each one with a 'WPI laundry system' attached," Womersley says. "The WPI students made a significant impact and an invaluable contribution to a poverty-stricken community."

Photos provided by Jessy Cusack '09.

A Dramatic Role

Destined for drama from an early age, Susan Vick's career might have remained a dream if not for the encouragement of women mentors. "I come from a long tradition of women supporting me," she says.

Vick, who has overseen WPI's drama and theatre programs since 1981, produced her first play at age 5 at her home in the Blue Ridge Mountains of North Carolina. "I was hell-bent for it," she says. "But the idea of doing theatre for a living was very remote."

Her parents hoped she might follow a traditional career path, but a few teachers saw the potential for something more. At Catawba College, for example, where she was a history major, her European history instructor told her, "You love history, Susan, but your passion is theatre. You're just going to have to do something about that."

What she did was enroll at Southern Methodist University, where, in 1969, she became the first woman to earn an MFA in directing. Through posts in academia, including Bowdoin College, where she was acting director of theatre, she developed a zeal for teaching. Returning to school, she earned a PhD in theatre at the University of Illinois—again, she was the first women to do so.

As the 1980s dawned, Vick's theatre resume was growing at an impressive pace. There were awards for acting, more than 20 directing milestones, and a budding career as a playwright—including a script accepted for production by the Ensemble Studio Theatre in New York. "Still," she says, "I needed to have a little more bread on my table."

When a position opened at WPI, she applied. The fact that the job required directing two productions a year was a plus. "It's very difficult to get those jobs where you also direct," she says. She recalls thinking the job might provide a short bridge to the next phase of her theatre career.

But she stayed, in part, because of friendships with other women faculty members (including JoAnn Manfra, who, as head of the Humanities and Arts Department, became an important mentor and supporter), and the opportunity to work with WPI students. Her resume continued to grow: founding *New Voices*, the longest running university new plays festival in America; becoming the first woman to win the WPI Board of Trustees' Award for Outstanding Teaching, and the third to become a full professor; and shepherding the creation of the Little Theatre, WPI's first dedicated theatrical venue.

She considers WPI's theatre program unusual because it spans so many student affiliations, something you would not see at many other schools. "I've always had great relationships with, among others, WPI's athletic coaches, who've encouraged their undergraduates to take part," she says. "There's always that person in an area you wouldn't expect who wants to participate. Here it's legitimate. You can do it. Everybody has a place at our table."

Looking back, Vick is pleased to realize that many of her fondest WPI memories have to do with the achievements of female students—most notably, the four trips by playwright Catherine Darensbourg '02 to the Samuel French Off-Off Broadway Original Short Play Festival in New York; and the many women who've blossomed as actresses, playwrights, directors, and theatre majors and minors.

"I work hard to find the best person for the job, from the wee roles to the producer," she says. "I'm pleased that, so often through the years, the best person has been a woman."

Inside WPI

By Michael W. Dorsey

Dan Vaillancourt

40
40th Anniversary

In the fall of 1968, Jayne Rosetti and Lesley Small (opposite page) were the first female undergraduates to enroll at WPI, both math majors. They had to commute to classes since there was no housing for women on campus. The following year, 24 women were admitted; five of them commuted and 19 lived on the first floor of Sanford Riley Hall. Today, over 25 percent of each incoming freshman class is women—and that number continues to grow.

As WPI celebrates the 40th anniversary of its becoming a coeducational university, *Transformations* speaks with alumnae who lived through the early years, and with current students, faculty, and staff about the importance of women in the STEM fields.

The Women *of* WPI

By Eileen McCluskey

When Lesley (Small) Zorabedian '72 entered WPI in 1968, she was one of just two female students at a university that had, for its first 100 years, kept its doors closed to women. "I felt very lonely," she recalls. The campus offered no residence halls for women, so Zorabedian commuted during her freshman year from her home in nearby Spencer. "I went to class and came home. The library was my home base, particularly since there were so few women's restrooms elsewhere on campus."

In the 40 years since Zorabedian stepped foot on campus, the university has undergone extensive transformations. All 12 residence halls are now co-ed. Over time, more profound changes were wrought—from higher numbers of women faculty and high-level administrators, to programs geared to recruit and support women students.

Of course, these changes did not happen overnight. As Lorri (Lind) Caruso Byrne '73 attests, WPI was in some ways ill-prepared for its first cohorts of female students. "From the

1:4

"I am pleased by the progress WPI has made in attracting and retaining these very talented, motivated women."

orientation package that told us to bring jacket and tie for Sunday dinners—we did, and we wore them!—to the half floor of Sanford Riley Hall where preparations consisted of a WOMEN sign on the men's room door and locked entrances at either end of the hall, we knew the university had not put a lot of thought into what women students would need," she says. "But Dean [Bernie] Brown and others in the administration were wonderful, as was Ma Riley [Elaine Kowalewski '71, the first female residence assistant], and most of us survived."

From 1 in 74 to 1 in 4, and counting

"I've seen tremendous change in my 27 years at WPI," says Janet Begin Richardson, vice president for student affairs and campus life. "We've brought in many more female students, as well as more female staff and faculty."

Indeed, women comprise 26 percent of the Class of 2008. While that figure hovers slightly below the national average of 29 percent for female technological majors, it's a far cry from the early days of coeducation. In September 1969, 12 months after the first two female students were admitted, 24 women entered WPI, changing the men-women ratio to a still steeply tilted 74:1.

To be sure, the number of female students increased during the 1970s, but, as alumnae recall, it was still intimidating at times to be a woman on campus. "I came from an all-girls high school," says Mary Farren McDonald '79, CEO/CTO of the McDonald Consulting Group. "To say that I had culture shock at WPI is an understatement.

"I couldn't figure out how everyone knew my name, and kept racking my brain for where I had met them," she says of all the friendly greetings she received. "Only later did I find out that all the guys studied the Freshmen Record to learn the girls' names."

Allison J. Huse Nunn '73 recalls a similar memory. Walking across the Quad with a female friend, they were greeted—by name—by nearly everyone who passed them. "It was pretty intimidating at times," she admits.

But, says Nunn, "each year was a little easier, as more classes with female members matriculated. By the time I graduated, the incoming freshman women were accepted as rightful members of the class by most everyone on campus."

As recently as 2000, only 18 percent of WPI's entering class was female, reports Kristin Tichenor, vice president for enrollment management. "From the time I joined WPI, it was made clear that our university had a strong interest in and commitment to enrolling more women."

Professors Michelle Ephraim and Eleanor Loiacono regularly meet with their female colleagues, as part of the Women's Faculty Network.

Looking at today's 1:4 ratio of female students to male, she says, "It's obvious that there is more work to be done, but I am pleased by the progress WPI has made in attracting and retaining these very talented, motivated women. We will continue working vigorously to encourage young women with great ability and aptitude to enroll at WPI."

Power lunches

As women students began to make inroads at WPI, so too did female faculty. Today, 50 of the university's 242 full-time faculty members are women. At the same time, "Women faculty still tend to feel isolated," says Michelle Ephraim, associate professor of English. Sensing a need to support her colleagues, she and Isa Bar-On, professor of mechanical engineering, founded the Women's Faculty Network in 2004.

The network holds informal brown bag lunches once every term. Through these confidential discussions, newer faculty and seasoned colleagues trade stories and advice on issues from the tenure process to committee work to classroom dynamics. "These informal bonds really help us,"

WPI's First Lady

While the decision to admit "co-eds" as undergraduates in 1968 changed the face of WPI dramatically, WPI's first female graduate, Audrey Carlan, hardly caused a ripple when she earned a master's degree in physics in 1957. She did make news headlines, though. Graduating with her husband and classmate, Alan Carlan, WPI's first married couple soon became the parents of the first full-blood alumni baby. The Worcester *Evening Gazette* headline called the Carlans a "Precedent-Shattering Pair."

The newspaper clipping has yellowed and faded, and the baby is now a 50-year-old systems analyst. But Audrey Carlan's memories of her pioneering achievements are fresh and vibrant.

"I never felt that as a woman I was treated any differently from the men," says Carlan, professor emeritus of mathematics at Los Angeles Community College. "I always believed that WPI was more interested in starting its graduate physics program."

The Carlans met as undergraduates majoring in mathematics at Brooklyn College. Later, they went to work for American Optical in Southbridge, Mass., where scientists Harald Osterberg and Gordon Walker were influential in shaping Audrey Carlan's career. At American Optical, the Carlans took advantage of on-site courses in advanced mathematics and physics offered through WPI. When the program shifted to the WPI campus, only the Carlans continued, earning WPI's first graduate degrees in physics.

Audrey Carlan's investigations of the electromagnetic scattering properties of spheroids—done on an IBM 650 console that was bigger than a refrigerator—could be considered WPI's first computer science project. She is the author of a practical text called "Everyday Mathematics for the Numerically Challenged," which she initially wanted to call "Calculating Women." A sailor, certified navigator, libertarian, and competitive bridge player, Carlan is the mother of three children and enjoyed 55 years of marriage to Alan before he passed away in 2006. She remains active at the Rancho Palos Verdes, Calif., home that she and her husband landscaped with rose bushes and dozens of fruit and nut trees.

Over the years, the Carlans enjoyed meeting up with other WPI alumni at regional events, where everyone initially assumed that Audrey was "just another alumni wife." She got a good laugh from their 50th Reunion invitation, which read, "Bring your wife along."

"Of course, Alan was gone at that point, but I called the alumni office to remind them that I'm a grad, too. We used to joke that WPI thought I was 'Aubrey,' not 'Audrey,'" she says. "When I enrolled, there was no place on the application to check Male or Female. Until I appeared on campus, I don't think WPI knew I was a woman."

—Joan Killough-Miller

Ephraim says. "We become better informed about what's going on around the university."

Eleanor Loiacono, associate professor of management, was in the midst of her tenure process when the network started. She jumped in, attending lunches and soliciting advice from her more senior female colleagues. She obtained tenure last year. "I still benefit from the multiple perspectives I get from my peers in the Women's Faculty Network on the post-tenure management of my career," she says.

Kristin Wobbe, associate professor and interim department head of chemistry and biochemistry, notes, "I'm the only female faculty member in my department. I can talk with my male colleagues about the same issues I discuss with my female colleagues, but I get a different perspective from the women faculty."

Priming the pipeline

For years, girls did not attend institutions like WPI because they weren't taking the high level math and science needed for admission. Now, young women are taking the right classes, but often don't find these fields attractive. "Our challenge is to help them see how a career in science, math, or engineering can impact the world in positive ways," Tichenor says.

That's why WPI has developed aggressive K–12 Outreach programs for girls and other underrepresented populations. "These programs," notes Tichenor, "emphasize how exciting science, math, and engineering can be and how it can help them make the world a better place."

K–12 Outreach, operated through the Office of Academic Affairs, offers over 40 programs for students from kindergarten through high school and their teachers. All programs are developed and run by WPI faculty and staff, and, says program director Martha Cyr (MS '87, PhD '97), "they encourage girls to feel as empowered as boys to perform academically."

Related outreach programs are offered through the Office of Women's Programs for girls in middle- through high school. WPI sophomore Renée Walker worked with two of the residential programs last summer, helping girls about to enter 7th grade (Camp Reach), and those about to enter grades 9 to 12 (WUNDERS: Women Understanding New Dimensions in Engineering Related Sciences). "It was lovely to interact with the girls," says Walker. "They reminded me of my three younger sisters back home in Jamaica. As I encouraged these girls to become engineers, I felt that I was helping them reach for their dreams. I hope my sisters will do the same."

Sara Duran '08 and Shelley Nicholson, director of Women's Programs.

A WINning network

Of the variety of initiatives provided by the Office of Women's Programs, perhaps none is more popular than the Women's Industry Network (WIN), a mentoring and networking group for WPI's female students.

Each year, over 200 women sign up for WIN, reports director of women's programs Shelley Nicholson. Students meet female engineering and science professionals—many of whom are WPI alumnae—for four evenings of dinner, panel discussions, and small-group conversations. Groups of four or five students are paired with a professional according to academic and professional interests. The clusters also meet informally at other times during the year.

Graduate student Rachel Berg '07 knows that her participation in WIN made it easier to find the kind of work she has craved since elementary school.

Through WIN, she met Lonnie DeLuca '02, who introduced her to an internship at GE Aviation last year. Berg has since been offered a full-time position there, "and I would love to take it," she says, "but I'm currently weighing my options between going into industry and pursuing a PhD in space propulsion."

DeLuca, a process manager and engineering programs specialist with GE, says she devotes time to WIN "because I want to give back to a terrific institution." She has introduced GE to so many talented WPI students—both female and male—that the company recently put her in charge of entry-level recruiting for its Engineering Development and Operations Management Leadership programs.

Sara Duran '08, an electrical and computer engineering major who has been a member of WIN since her freshman year, also found the program to be beneficial—she met other women students and connected with female professionals in her field.

"It's not often that you'll find yourself in a room with over 200 women who will be the leaders of tomorrow," she says.

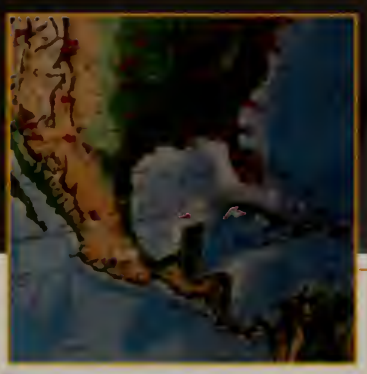
As an ECE major, Duran—who will head to Duke University this fall to pursue a PhD in the same field—explained that it's not always easy to be surrounded by so many men, especially in the classroom. "The hardest part for me was connecting with other woman," she says. "But overall, male students and professors don't look at us as women. They see us as engineers." ■

Judy Nitsch '75, Anni Autio '82, and Terese Kwiatkowski '83 share more than an alma mater. They hold the unique distinction of being the first three women presidents of the oldest engineering society in the United States—the Boston Society of Civil Engineers Section (BSCES) of the American Society of Civil Engineers. In fact, the current and fourth female president, Linda Hager, also has ties to WPI—she took graduate courses here.

Transformations asked these remarkable alumnae to share their thoughts on careers, professional organizations, and the importance of reaching out to other women in a mostly male profession.

Paving the Way

By Joan Killough-Miller



WPI's Alumnae Dynasty at the Boston Society of Civil Engineers

"For the first eight years of my career, I was the only woman engineer at my workplace."
Judith Nitsch '75
President, Nitsch Engineering
Boston, Mass.
BSCES President, 1980-81

Judy Nitsch feels fortunate to have started her career working for a WPI alumnus—she considers Jim Dunn '61 a great engineering mentor, who helped her navigate the ins and outs of the profession. But despite the early success, she later learned that his firm almost didn't hire her. "They wondered if I could use a chain saw," she says, "and they wondered if I could handle working with the men on job sites. They didn't realize that I have five younger brothers."

Though she has, in fact, never operated a chain saw, Nitsch's engineering career hasn't suffered. In 1989, she founded Nitsch Engineering and built a team of 70 employees and nine shareholders. Today the firm provides civil

engineering, land surveying, transportation engineering, and planning services, along with GIS (geographic information services) on projects in 15 states and six countries. She has advanced her firm to the forefront of sustainable design by creating and implementing green techniques on projects, which has led to working with world-renowned architects here and abroad. Noteworthy projects include the New England Aquarium, Brooklyn Bridge Park, the Connecticut Science Center, Boston's Big Dig, Atlantic Yards in Brooklyn, Acadia National Park, and the award-winning MetroWest Water Supply Tunnel project.

"About one third of Nitsch Engineering's engineers are women—compared with 10 percent nationally," she says. "We look for the best qualified candidates of both genders, but I think women seek us out because they see women at all levels of our firm, including three women engineers as shareholders. They realize they would have a good opportunity to get ahead without discrimination."

From Taking Notes to Taking Charge

In 1975, Nitsch's name came up as the "token woman" tapped to serve on the BSCES planning committee for the upcoming ASCE convention in Boston. When she received the list of committee assignments, she was surprised to learn that she had been appointed chair of a subcommittee.

"I went to the first planning meeting and found I was the only woman engineer. The other women there were engineers' wives, who'd come to plan the 'women's program' for the spouses. I was asked to take minutes. I did. At the second meeting, I was asked again to take minutes. I suggested rotating that responsibility. They did."

After the convention, Nitsch was asked to join the BSCES Membership Committee, and she became its chair a year later. She was then asked to join the Board of Directors, and she later served as its secretary, followed by vice president, which led to the presidency.

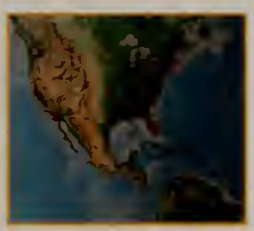
"I gained a lot of credibility through BSCES," she says. "And once I started my own business [then called Judith Nitsch Engineering], I realized that name recognition was invaluable."

The first alumna appointed to the WPI Board of Trustees, Nitsch currently serves on its Facilities Committee, which she considers a highlight of her professional career. In 2006 she was profiled in *Changing Our World*, an ASCE publication designed to inspire young women considering a future in engineering. Since graduating from WPI, she has actively helped other women through her participation in the Society of Women Engineers (SWE) and BSCES. As well, Nitsch Engineering continues to organize Boston's Introduce a Girl to Engineering Day.

"I will speak with any woman engineer who calls asking for career advice, because as a young engineer I had no women to talk with professionally," she says. "For the first eight years of my career, I was the only woman engineer at my workplace.

"I tell young women engineers to remember: *all* of the rookies—male or female—on the construction site get teased and embarrassed by the old-timers. And usually the newbie is asked to get coffee. That's just a rite of passage," she says. "Being the only woman is sometimes lonely, and often enlightening, but it helps folks remember you."

When Anni Autio graduated and entered the job market, entry-level civil engineering job opportunities were scarce. "I received close to 100 rejection letters," she recalls. "This was not uncommon, particularly in the New England area."



What was unusual—perhaps unheard of among male engineering graduates—was her first job offer: a word processor, with the promise that she would advance to full-time engineering assignments soon. "My foot is in the door, and I'm excited," she wrote in an optimistic note to WPI's class notes editor in March 1984. During a company hiring freeze, she was promoted to an entry-level engineering position, and for several years, she was the only woman in her group.

"Throughout my early career, I handled a number of gender bias issues, including lower pay, lack of advancement, and the denial of training requests to support project work. When I joined CDM in 1989, I found a workforce that had more women than I had ever worked with at previous firms."

A Career Commitment

Autio's involvement in ASCE began at WPI's student chapter, where she served as secretary during her senior year. "I had absolutely no idea at that time how my future would change, how my professional contact network would expand, or that I would continue to develop my leadership skills."

After graduation, she remained in touch with Judy Nitsch, whom she had met through SWE. A few years later, a colleague

invited her to become a member of a new BSCES committee on infrastructure. "From there, my civil engineering career was launched," she says.

Highlights of Autio's service as BSCES president included overseeing the society's 150th anniversary celebration and serving on the local organizing committee for the 1998 ASCE Annual Conference in Boston. "Professional organizations provide opportunities for members to gain leadership skills," she says. "I view my ASCE membership as a commitment to my career. I'm proud to have been elected to serve two consecutive terms on the ASCE National Board."

"The climate has changed significantly since I graduated," she says. "Women now have an equal chance to enter the workforce and are protected by equal opportunity and zero tolerance [anti-harassment] policies in the workplace. New technology—for instance, telecommuting—is also helping to balance the work-family equation, so that one's professional life can be more flexible and less stressful than it was even 10 years ago.

"The future looks brighter and there are open opportunities for leadership and advancement. This is due in part to the perseverance of the pioneering women who helped open the door to a more diverse and friendly work environment," Autio says.

"In 1982, when I attended my first SWE convention in Detroit, 600 women attended. In 1995, 1,800 women attended. I don't know the exact numbers today, but I do know that it is less lonely to be a woman in the workforce now."

Anni Autio '82
Senior Project Manager, CDM
Cambridge, Mass.
BSCES President, 1997–98

"I have always had good support from my colleagues and my company."
Terese M. Kwiatkowski '83
Senior Vice President and Principal,
GZA GeoEnvironmental Inc.
Norwood, Mass.
BSCES President, 2006–07
Tony Rinaldo

It was Terese Kwiatkowski's father, a hydropower engineer, who inspired her fascination with building underground. At WPI, she excelled in basketball, field hockey, and softball. She was the first basketball player ever to reach the 1,000-point mark in just three seasons. She graduated the all-time leading scorer, with 1,441 points, and was inducted into WPI's Athletic Hall of Fame in 1989.

At GZA GeoEnvironmental, Kwiatkowski rose from field engineer to office project engineer to project manager and then to principal. Today she leads a team of 11 engineers, providing geotechnical design for foundations, tunnels, dams, utilities, marine facilities, transportation, and temporary underground structures. Her major projects include New York City's Second Avenue Subway, Boston's Big Dig Central Artery Tunnel, and the former Fleet Center (now TD Banknorth Garden).

"I have always had good support from my colleagues and my company," she says. "I generally feel that I was neither held back nor favored because I am a woman." Only once, on a site visit to a tunnel construction project, did Kwiatkowski encounter resistance, from an elevator operator who was reluctant to take her underground. "I was informed that tradition holds that it's unlucky for women to go into tunnels," she says. "My colleagues quickly intervened. The situation was over in about a second. Since that episode, I have visited many underground projects, none of which had any subsequent disastrous effects."

A Legacy of Accomplishment

Many of the GZA principals were active in BSCES, including founders Don Goldberg and Bill Zoino, and Kwiatkowski was encouraged to join that legacy.

"Being part of BSCES allows me to apply and develop leadership and management skills that I incorporate in my professional work," she says. As BSCES president, Kwiatkowski worked closely with the Younger Members Group in an effort to improve communication between this group and the board. Other milestones include converting *BSCES News* from hard copy to electronic distribution, launching a cable TV show called *Civil Engineering Today*, which airs monthly on the Boston Neighborhood Network, and drafting a strategic action plan for 2009–2014.

Kwiatkowski, a member of WPI's Civil and Environmental Engineering Advisory Board, continues to provide oversight to a number of BSCES committees, and serves on The Engineering Center board of directors and the board of trustees for The Engineering Center Education Trust.

She points to numbers showing that women are still very much a minority in civil engineering. "However," she insists, "women have been part of the field for quite a while now, and my perception is that if you understand the work and can communicate clearly, there should be no gender issue.

"It's more of a competence issue, which applies to both women and men," she says. "I'm sure it was easier for me to overcome gender issues because of the women who preceded me, and that it's easier for those who've joined the profession after me." ■

It's been nearly a decade since Lisette Manrique and Shruti Pai first crossed paths at WPI. Manrique, pictured, a Massachusetts native whose parents had come from Colombia and Puerto Rico, was starting her sophomore year after transferring from Boston University. Pai, the daughter of Indian parents, had spent her childhood in Zambia before attending boarding school in South Africa, and then traveling across the Atlantic to college in Worcester. At various points in their WPI careers, the two biomedical engineering majors took the same courses, lived in the same dorm, conducted research in the department's labs, and did their IQPs in Costa Rica. Both developed close relationships with professors George Pins and Kristen Billiar, as they worked toward their BS and then MS degrees. They also shared a lifelong interest in art. Today, although they live on opposite coasts—Manrique outside of Boston and Pai in Seattle—they remain good friends. In separate conversations, the two women talk about the life-saving projects they're doing, and how WPI helped launch them into the biomedical field.

By Joanne Silver

Raising the Bar

In the cafeteria at Codman & Shurtleff Inc., Lisette Manrique is animated as she discusses a promising new device to treat a swelling condition in the brain called hydrocephalus. Eyes sparkling, golden earrings swinging, she describes the work that has kept her engineering team busy for months, that will send her to India to check out a manufacturing facility, and that—if all goes right—will lead to a new product next year. Wearing a stylish black dress, cropped sweater, and sleek black boots, Manrique looks like the last person on the planet who would ever sport a pocket protector.

And yet the 26-year-old with a BS ('03) and MS ('05) in biomedical engineering is a rising star. She leads an interdisciplinary team of more than a dozen people at her Raynham, Mass., company, a division of Johnson & Johnson. She is involved with every step of the product development process, concept to launch. She is as comfortable charting the pathways of the brain as the personality types that comprise her group. Most of all, she is brimming with enthusiasm.

"It has been my experience that if you have the desire and drive to achieve something, then nothing should be able to keep you from attempting it," she says in her profile on engineeryourlife.org, a website created by WGBH and targeted at high school girls. For as long as she can remember, Manrique has received complete support from her family, her high school teachers in Tewksbury, Mass., her professors at WPI, and the employers who have benefited from her can-do attitude. She recalls the scroll saw she received at age 13 from her father, who works in high tech; the many visits to ACCION, a microfinance nonprofit where her mother is vice president of human resources; the "Human Body Program" she attended as a 15-year-old, in which she studied with Boston University medical students and visited an emergency room and a morgue; and the high school job at a physical

"If you have the desire and drive to achieve something, then nothing should be able to keep you from attempting it."

—Lisette Manrique '03

Shruti Pai imagines a career in biomechanics, possibly in Africa. And she hopes she will be able to inspire other young women to discover options they never knew they had.

therapy office. "I realized that I didn't necessarily want to be touching people all day," she says, "but I got so excited about the tools.

"No one ever told me, 'You should go into something woman-friendly,'" she notes. And so Manrique happily followed her love for tools into biomedical engineering, where she was able to combine her passion for tinkering with her desire to do something that would help people. At WPI, she worked with professors Allen Hoffman and Holly Ault in the Assistive Technology Resource Center, eventually doing her MQP and graduate thesis in conjunction with the Massachusetts Hospital School, in Canton, Mass. Her first effort centered on devising a saddle for youngsters with disabilities to use while engaging in physical therapy on horseback. Manrique rattles off the challenges she encountered—individuals of varied ages and sizes and muscle tone—and the ultimate reward of aiding an activity that could improve the children's physical condition and sense of well-being. For her master's thesis project, Manrique helped develop an obstacle-sensing system for a child's wheelchair that could produce auditory feedback, signaling the child to change direction.

A good word from Professor Pins helped Manrique land her first job, at a medical device company in Andover, Mass., where she focused on spine discography. "I learned a tremendous amount there," she says. "I had to do tests, write reports, follow protocol. I got to dabble in everything." Before long, she brought this passion for crafting solutions to a Johnson & Johnson company concerned with the spine, and then to her present position in a company specializing in medical devices for neurosurgery.

"The best part of being an engineer is being able to solve problems with a hands-on approach," Manrique says. (On the walls of her cubicle, a large chart of the human brain hangs across from a cartoon featuring Snoopy clasping Charlie Brown and the words HUG IT OUT!) Whether she is guiding her coworkers or designing a sophisticated piece of machinery, Manrique keeps her touch grounded as much in humanity as in skill.

On a January evening, Shruti Pai '04, MS'05, has just walked in the door—not from her challenging work studying diabetes and foot injuries, but from a session on an indoor climbing wall. "I do rock climb outdoors, where it's most fun," she says over the phone. "I love being in Seattle. We've got the beach, the mountains. I'm a fishing woman. I go backpacking and snowshoeing. And I love the city side of things. There's a lot of life here."

Before long, it becomes clear that there's a lot of life wherever Shruti Pai is. A doctoral candidate in biomechanics at the University of Washington, Pai is happiest when she is exploring, both intellectually and geographically. She can claim three continents as home: Asia, since she is a citizen of India; Africa, where she grew up; and North America, where she has lived since entering WPI in 2000. "When I was younger," she admits, "I always felt like an outsider. Now I feel so at home everywhere."

Pai's professional efforts are geared toward helping others feel more comfortable in their worlds. At Seattle's Center of Excellence for Limb Loss Prevention and Prosthetic Engineering—within the U.S. Department of Veterans Affairs—she investigates the connections between diabetes and foot problems. She spends a lot of time sampling tissue from the feet of cadavers, trying to "understand the difference between diabetic and normal tissue." Such knowledge could lead to better insoles to relieve pressure, and therefore to fewer unhealed ulcers and amputations among patients with diabetes.

"I love brainstorming," Pai says. Speaking from Seattle, she traces her excitement back to WPI: "My MQP really spurred me on." For that research—which she has published and presented at a professional conference—she investigated utilizing metal plates rather than wires to stabilize the sternum in open heart surgery patients. Pai measured the forces on different plate configurations applied to synthetic human bone. "I really liked being given a problem, testing, doing the data," she explains. She also feels lucky to have worked with Billiar and Pins as both an undergraduate and graduate student.

Had it not been for a teacher in her high school in South Africa, however, Pai might not have found her niche so readily. As a teenager, she was most interested in biology, physics, and art. "I had no idea until the very end how I was going to tie this all together," she says. "But a teacher encouraged me to take an aptitude test." When it pointed to biomedical engineering, Pai was intrigued. Up until then, she admits she thought that an engineer "sounds vague and so masculine."

Now, several years away from completing her PhD, Pai imagines a career in biomechanics, possibly in Africa. She plans to keep traveling and seeking adventures. And she hopes she will be able to inspire other young women to discover options they never knew they had. ■

Patrick O'Connor

The Face *of* Engineering

By Joanne Silver

"We create and design the experience—how it feels, how it smells, how you pick it up, the benefits. We call ourselves storytellers."

At her office in Estée Lauder's Manhattan headquarters, Lise (Wivestad) Jorgensen '87 is talking about paint. Not just any paint—automotive paint. A day before jetting off to Athens for a strategy meeting of worldwide markets, Jorgensen, vice president of the company's global product development, is illustrating how she taps into a variety of fields for product ideas.

To be sure, no woman would want to be slathered in a coat of blue enamel. But Jorgensen explains, "Look at how paint shines on the surface of a car, how it accentuates curves and features. Optics, pigmentation, and reflective materials play a significant role in makeup, too. With paint, you want consistency of color. I, too, need consistency of color."

This sort of outside-the-box (or can, in the case of paint) thinking has propelled the WPI graduate from a BS in chemical engineering to a strategic position with one of the most respected names in cosmetics, skin care, and fragrances. Speaking on the phone from New York, Jorgensen gives a share of the credit to her alma mater. "Where else can you get the understanding and learning and see the applications? Where else do you get the privilege of seeing the link to the practical world?" she asks. "Why am I successful? I had the opportunity to learn and truly understand the fundamentals of science and allow my creativity to apply it. I have the breadth to understand lots of areas—not to the depth of experts, but I have the capability of digging deeper."

Jorgensen's MQP provided an early—and emotionally charged—sense of the real-world impact of her studies. For that project she worked at UMass Memorial Medical Center, designing consistent blood clots in order to do dissolution studies of the clot-busting enzyme TPA. The clots would be injected into rabbits to cause strokes, and then physicians would inject TPA and observe its effects. Shortly after Jorgensen completed her MQP, her father suffered a heart attack, but because TPA had not yet been approved, she was unable to persuade doctors to use it on him. When her mother had a stroke more than a decade later, however, TPA had become a standard tool, and Jorgensen gratefully witnessed its positive effects.

As drawn as she is to knowledge and discovery, Jorgensen is equally committed to a strong sense of principles and beliefs. When asked where she developed this quality, she cites her family first and her college second. At WPI, she says, all the courses consider how a value system applies to the world.

In the cosmetics industry, Jorgensen promotes trustworthiness and honesty. "We want to deliver the goods in an ethical way," she says and then elaborates: "When we develop any product, we need to be sure that not only are they safe—so that no one will be harmed—but more importantly, ensure the products deliver on what we say they will do. There's a lot of snake oil out there."

In January, Re-Nutriv Ultimate Youth Creme became the most recent product to appear on the market as the result of "the pipeline of innovation," Jorgensen explains, excited. She offers a brief history of the science of genetic aging, touching upon groundbreaking research done jointly with MIT and Harvard, as well as the natural compound resveratrol, caloric restriction, and other factors that can bolster longevity. "We've been using resveratrol for 15 years as an antioxidant," she says proudly of Estée Lauder's scientific quest for youthful skin.

In addition to the science of the product, Jorgensen says, "We create and design the experience—how it feels, how it smells, how you pick it up, the benefits. We call ourselves storytellers. We try to create the desire and the need. The story is the emotional link to the practical application of the product."

A summer internship at Procter & Gamble in Ohio before her senior year at WPI served as Jorgensen's career Eureka! moment, launching her into a lifetime of brainstorming for consumers. She loved the impact on everyday life, the practicality of connecting science, technology, and research to a user's wants, and then seeing the result on store shelves.

Now, as a 42-year-old wife, mother of two, and leader in her field, Jorgensen feels a kinship with Estée Lauder customers. "I understand what consumers need and do," she says. "I see what's bumming them out. I know what's going to sell. I'm a consumer like everyone else." Having worked for Bristol-Myers Squibb and Clairol, in addition to P&G and Estée Lauder, Jorgensen says, "I have worked on every category from head to toe." From Fixodent to Oil of Olay, from Loving Care to Herbal Essences body wash, she has introduced and improved products across the shopping spectrum.

Skin has a particular appeal for Jorgensen. "It's alive," she says. "It's constantly changing—throughout life as well as throughout the day." She describes the diverse beauty routines of women around the world: Asians gladly spend great amounts of money and time to have flawless skin; Americans want everything done in one quick step; Europeans value a customized approach. In her frequent trips for business she sets aside a couple of days to notice people's purchasing patterns, how they live, what kind of pollution surrounds them, whether they eat on the go. And yet, when asked what tips she would recommend, Jorgensen is quick to say, "It's not just what product you buy. Sleep well. Eat well. Be well. A balanced life, a healthy attitude—your grandmother probably also said this to you."

Women, in fact, figure prominently in Jorgensen's approach to life. Her reaction to women at WPI is simple. "We need more of them," she says. "Women carry a different energy and skill. It's more collaborative. The more women we can get into the senior level of an organization, the more functional that organization will become." ■

Designed for a Cleaner

When Sarah Arsenault was a girl growing up on her parents' apple orchard in central Massachusetts, she knew three things: she had a fierce appreciation for the environment, she had an affinity for math and science, and she'd never be a farmer.

"It was part of the reason why I wanted to go to college," says the WPI chemical engineering alumna. "Both my parents are really hard workers and they taught me the value of hard work. But I didn't want to work the land."

Although she opted out of the family business, she says that in her own way she is working the land—by making sure it has a future.

Arsenault, a senior research engineer at United Technologies Research Center (UTRC), the central research and development center of United Technologies Corporation (UTC) in East Hartford, Conn., is an award-winning researcher in the development of safe, effective hydrogen storage systems for automotive fuel cells. In 2006, she and the Hydrogen Storage team at UTC were recognized by the Department of Energy for the successful development and demonstration of a generation 2 Hydrogen Storage prototype based on complex metal hydrides.

From the day she was accepted to WPI, Arsenault's goal was to go into environmental engineering (she minored in it). It was therefore no surprise that she interned for Capaccio Environmental Engineering, an environmental consulting firm, where she designed industrial wastewater treatment systems. Although the experience was invaluable, it was not as satisfying as she had hoped it would be.

"I realized I absolutely hated cleaning up after someone made a spill," she says, referring to accidents such as that of the Exxon Valdez, the tanker that ran aground in Prince William Sound in Alaska in 1989, dumping 10 million gallons of crude oil into the sea.

"I wanted to work on new technology that would prevent negative environmental effects from happening," says Arsenault, who was named one of the 15 New Faces of Engineering for 2007 by Engineers Week, a program that highlights the work of young engineers and their impact on society.

Her viewpoint, she says, is that we, as humans, come up with "brilliant technology"—from the internal combustion engine to nuclear power—but we don't necessarily recognize the environmental impact it will have.

"Look at our problems with global warming," she adds. "We have developed all of these breakthrough technologies in the past 200 years without awareness of their global cost. If we had understood those technologies better, we would have found a way around the environmental consequences. That's the essence of my motivation. I wanted to do research that would have an impact upfront by designing environmentally friendly technologies. This was where graduate school made sense as an obvious route to the additional skills I needed to make an impact."

Arsenault received her PhD from Tulane University in 2003, where she specialized in heterogeneous catalysis. It was the study of how catalysts accelerate chemical reaction rates that eventually led her into the fuel cell field.

UTRC's research in hydrogen storage is funded through a Department of Energy contract, part of President Bush's Hydrogen Fuel Initiative. Although it's still in development, Arsenault says the project has made great strides toward turning the technology into a commercial reality by developing initial system prototypes. The impact on the environment is enormous, she says.

Hydrogen storage is absolutely fundamental to fuel cell technology. There are different ways to store hydrogen: as a high-pressure gas, as a cryo-liquid, or in a solid form—in a

Future

By Kate Evans-Correia

As a leading research engineer in the development of hydrogen storage and fuel cell design, Sarah Arsenault '98 is on a mission to develop the next generation of environmentally friendly technologies.

solid-state hydrogen storage material, such as a hydride or in a sorbent material. Arsenault's team developed a method of solid storage that consists of a hydride that absorbs hydrogen. When heated, using the latent heat from the vehicle's fuel cell, the hydride desorbs hydrogen, allowing it to be used to power the fuel cell.

Although many experts predict the commercial use of fuel cell technology for automotive applications is another 10 years away, Arsenault insists, "it's a critical application for the future of energy production."

Another initiative she believes is as vital to the future as fuel cell technology is the advancement of women in science and engineering. Arsenault, a member (and past officer) of her local chapter of the American Institute of Chemical Engineers, has been instrumental in promoting the chemical engineering field to local colleges and hosting middle- and high school girls visiting UTRC.

Arsenault herself had a middle school math teacher who was extremely influential in developing her interest in math and science, encouraging her to take on special projects. In high school, she was one of only three girls in Advanced Placement courses and the only one interested in math and science. She admits to being an oddity. But she found her middle ground at WPI, where she became one of a number of women in the chemical engineering program, and she never looked back.

Although engineering is in her blood, an MBA is in her future. Arsenault is pursuing a degree from Carnegie Mellon University because she wants to be able to influence the business aspects of her research. "How much influence can you have in an organization if you're in the trenches?" she asks. "You have to be able to provide some guidance on the direction the business needs to take."

Still, her passion for engineering is not likely to wane anytime soon. "I think that engineering is going to have a huge impact on the future—in energy, the environment, the medical field," she says. "I can't think of another discipline that has such an impact on society." ■

AlumniConnections

In the previous issue of *Transformations*, Alumni Association President **Bill Krein '62** introduced the Association's new strategic structure. He also called on alumni to roll up their sleeves and build on the WPI legacy that helped launch them in their own careers. In this second installment, Krein explains why alumni are the greatest untapped resource that WPI has.

What are the top priorities for the WPI Alumni Association?

The Alumni Association remains strongly focused on alumni engagement, career services (in conjunction with WPI's Career Development Center), and support of the upcoming capital campaign. The Board of Trustees recently adopted a resolution in support of the campaign, and we intend to take a similar action. Another initiative of particular interest is enacting a commitment to substantially increase scholarship funding.

You've spoken of a new model for alumni engagement . . .

Yes, we need to engage all alumni—whether it's through advisory boards, committees, events, or regional chapters—and begin to find ways to grow involvement. With new information-sharing technologies, we can leverage the talents of alumni who are busy, who have careers and family, and who can't travel to campus easily, but who still want to help. The vision is for the staff of the alumni office to provide a central point of contact. There's a need and a role for everyone. It's as simple as that.

We also need to take a look at how we're asking alumni to help. If the only contact you have is a phone call asking for money every five years, understandably, you might become a bit jaundiced. But if we ask you to share your talents and experience, then you'll want to stay involved. What we've found in the past is that when members of the alumni community have turned to each other for advice, people are perfectly willing to help.

Beyond what alumni can offer to each other, how are they poised to serve their alma mater, as WPI endeavors to expand its reputation nationally?

Up to now, the Association has been largely an inward-looking organization. With the arrival of President Dennis Berkey and Dexter Bailey, vice president for development and alumni relations, the question became: What can the Alumni Association do to catch up with and support WPI's great strides?

We, the collective alumni body, represent a tremendous resource—not only in financial capital, but in experience and expertise. We are a deep and broad source of information. There are exciting possibilities for alumni to serve as a sounding board to the administration. We are in a position to advise and inform the Trustees and the President's Office, and to present the voice of alumni. While we still want to represent the interests of alumni, we also want to engage them to be a part of the development and advancement of WPI.

How do you envision people and technology working together to link alumni to the campus community?

Here's a perfect example: When Team 190, the WPI-sponsored robotics team, took top honors in the national FIRST finals in Palo Alto, Calif., last year, it showed the world what WPI is all about. You can't see that and not be proud of your alma mater. The Alumni Association hosted a reception where local alumni could meet the students on the team and their advisors. We now have the means to get the word out to everyone, rapidly, on our new alumni website, **alumniconnect.wpi.edu**, and through electronic mailings that are available to all alumni who furnish an email address to the alumni office. We've got the capability to host discussion groups on the new AlumniConnect online community and post personal updates and pictures. The time couldn't be better for all of us to come together for the common good of WPI.

Don't miss Reunion Weekend June 5–8! The Classes of 1933, 1938, 1943, 1948, 1953, 1958, 1963, 1968, 1973, and 1978 are invited to reconnect with classmates and learn about WPI today during this fun weekend. All classes are invited to the Alumni Golf Tournament on June 5—check your mail for details. *More information at wpi.edu/+reunion.*

Connie's Corner

By Connie Horwitz

When my own college alumni magazine arrives in the mail, I make a beeline for the class notes section. I marvel at where people are going, where they've gone, and how they've made the decisions that landed them at their current destination.

For some, there have been measured choices—I like to think of them as thoughtful speed bumps—with time to think and implement. For others, there have been exit and re-entry ramps, planned and unplanned. When they return to their road, it may have changed its terrain—a new bridge here, an intersection there—offering new routes. For others, there has been nothing but high speed traffic lanes and rapid changes. And then there are the classmates who are working and building their lives without sharing a word with their peers.

I find that I have come full circle. My first professional position fresh out of college was to serve as an alumni placement officer at Northeastern University. (Back then the focus was completely on placement.) Over the years, I have tacked my way through the newer fields of career development, marketing, and professional search trying to balance the milestones and setbacks of life: marriage, another degree, family, volunteerism, divorce, regrouping. Sometimes it was wonderful and sometimes it was not. Still, I always knew who I was. Career development was, as I learned, part of my life's development.

I'd be naïve to think that all college graduates have found their way to career development professionals at some point to help them map out their journey. Not everyone needs to do that. But I had the recent opportunity to attend an adult-only life review workshop that left each participant wondering why all adults don't go through a tune-up like that now and then. It's good to have other people hear your own inner voice when you may have grown deaf to it.

Here at WPI, there's a wealth of opportunities for alumni and students. In my new role, I embrace numerous but exciting challenges. I hope to provide career assistance to alumni in need—by phone, email, or *The Bridge*, or in person at a regional meeting. I hope to connect students with alumni in their field. I suspect alumni will be amazed at what these young people have to offer—as the bright stars of their generation. This connection, this networking, is how positions are filled in most organizations. And for alumni who want to revitalize their rusty skills in an intense but quick program to get back in the game, I will collaborate with my colleagues on campus to provide a program to do just that.

As I begin my new challenges, I challenge you as well—I invite you to get in touch and share your career experiences. Please take a few minutes and share what led you from one role to the next, even if you are just starting out. Write to **cdcalumni@wpi.edu** at any time.

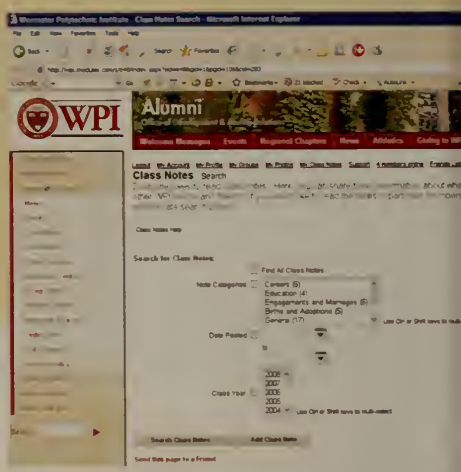
As we celebrate women at WPI in this *Transformations* issue, I hope that you will think about the turns your career has taken. Whether you're traveling the high road or the low, I sincerely hope you're savoring the ride.

Connie is the Assistant Director of WPI's Career Development Center. Contact her at cdcalumni@wpi.edu.

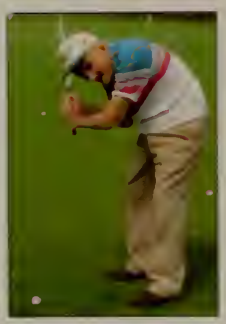
Class Notes

Staying Connected with Old Friends

Material for Class Notes comes from newspaper and magazine clippings, press releases, and information supplied by alumni. Due to production schedules, some notes may be out of date at publication, but may be updated in future issues. Please allow up to 6 months for your news to appear in print. Send your Class Note to alumni-editor@wpi.edu. You may fax it to 508-831-5820, or mail it to Alumni Editor, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280.



1930s



Roman "Joe" Kozoil '34 is an enthusiastic golfer and an avid sports fan. He lives in Portland, Ore., with his nephews. His wife, the former Claire Bullis, died in 2006. A World War II veteran, his decorations and citations include the European-African-Middle Eastern Theatre Campaign Ribbon with four battle stars, American Theatre Ribbon, and Victory Medal World War II. Joe was discharged at Fort Dix, N.J., in 1946. He is most proud of his certificates of recognition from General Wesley Clark of the U.S. Armed Forces and President Harry Truman.

1950s

Moved by the amount of obituaries in the Summer 2007 *Transformations*, **Don Lewis '51** is looking to get in touch with his classmates. (See his letter, page 3.) Contact him at dlew616@yahoo.com or by mail at Bethel Health Care, Bethel, CT 06801.

Ed Shivell '54 writes, "Recently **King Webster '54** and I, with our wives, attended the *Imagine and Achieve* presentation with President Berkey here in New Hampshire. I recommend you make an effort to attend one of these gatherings when possible."

Howard Whittle '54 reminds classmates that you can find news and photos online at alum.wpi.edu/+1954.

Richard Campbell '58 writes, "Two weeks into my 23rd year of teaching acoustics and audio engineering in the ECE department, I suffered a spinal infection resulting in life in a wheelchair. I taught via Internet in 2005, an exhausting experience."

Solon Economou '58, a retired Army officer and engineer, continues as a columnist for the *Cape Cod Times*. His columns, which appear on alternate Thursdays, often refer to his WPI roots and to the scientific and technological advancements of WPI professors. He lives in South Dennis, Mass.

Bill Rabinovitch '58 had a solo show of his paintings in Miami recently. He's also been exploring electronic compositions, which he plans to incorporate in his film about Jackson Pollock (Pollocksquared.com).

Jim Alfieri '59 and his wife live in Santa Rosa, Calif., but were able to join classmates for the Homecoming luncheon and football game last fall. They were traveling back east to visit family.

Bob Allen '59 retired to Virginia Beach, but returns to Sterling, Mass., periodically, where he and his wife have a family home. Bob is a Master Gardener and keeps busy doing this and some volunteer work.

Dave Bragg '59 is northern New England regional manager for Milone & MacBroom. He and his wife also run a bed & breakfast in Newcastle, Maine.

Joe Bronzino '59 was featured on a Connecticut Public Television series called "work. learn. live." The segment featured area business leaders and industry experts. Bronzino emphasized the need for a skilled workforce for the state's medical device manufacturing industry.

After a trip to Italy in September, Nancy and **Fred Costello '59** headed for Bonita Springs, Fla. Fred and classmate **Lee Courtemanche** joined **Win Wassenar** at the Venice Country Club for some golf last spring. Lee is now living in Marietta, Ga., and working part time for Ahlstrom Pumps.

Wayne Gass '59 retired as dean of administration and business manager at Mount Holyoke College. He remains in South Hadley, spending much of the summer in Orleans on Cape Cod.

Brad Harper '59 has retired but continues to work part time, heading to zero time, he says. He served as co-chair of his 50th reunion at Northbridge (Mass.) High School, where **Win Wassenar** was a classmate.

Richard Kingsley '59 lost his wife, Rita, in July 2006. "We married the week after I graduated from WPI, raised five children, and lived in eight cities from coast to coast. I retired for the third and final time in 2005. I'm now involved in volunteering at the church (overseeing maintenance work), driving meals-on-wheels, and working out at the local YMCA. My current job description also includes traveling and enjoying our 11 grandchildren (ages 5 to 20).

Ed Saulnier '59 of Colchester, Vt., represented WPI President Dennis Berkey at the inauguration of the new president of St. Michael's College last year. He and his wife, Peni, also took a 27-state trip in their camper last summer, visiting children and grandchildren.

Win Wassenar '59 and his wife, Vanessa, went to the Galapagos Islands this summer with three grandchildren. He is retired from Williams College and living in Williamstown, Mass., doing a little consulting and golfing, and spending time in Venice, Fla., in the winter. Win reminds us to send news items to wwassena@williams.edu.

1960s

Richard Brewster '60 photographed before-and-after records of cleft palate surgery at Royal Victoria Hospital in Banjul, Gambia. His wife, Susan, tended to patients in the recovery room, which lacks running water and is plagued by mosquitoes. He sends out a call for volunteers to help with the hospital's water supply system. Check out mercyships.org for information on the floating hospital program.

Since his retirement in June as university vice president, **Steve Hebert '66** has eluded all efforts to honor his decades of service. **Joe Ferrantino '67** (left in photo) and **Bill Krein '62** presented Hebert with a token of the Alumni Association's gratitude—a handsome golf bag customized with the WPI logo. Krein reports, "Steve was hugely impressed and asked that we convey his appreciation to all of his WPI alumni friends."

Joe Ferrantino '67, right, met up with **Tim Golden '76** and **Charlie Wojewoda '67** in San Gimignano, Italy, in September 2007. Joe writes, "Tim and his wife were there celebrating Charlie's 40th wedding anniversary, and Donna and I had come to celebrate ours. We all met by accident in the lobby of a small hotel. If we'd come 10 minutes earlier or later, we would not have known the others were there! Charlie and I and our wives were together at WPI in June for the 40th Reunion. We didn't realize we both had plans to visit Italy, let alone the same small village. What a small world!

Ken Battle '68 writes, "After three reasonably successful years running my own consulting business, I have returned to the world of employment, with Fluor in New Jersey. My business is still open for short-term projects and follow-up with existing clients. I have no plans to retire as I enjoy engineering too much, along with the benefits it brings." Ken's business website, www.kenbattleservices.com, has photos of his latest addition: an '84 Ferrari 400i, as well as the other sports and GT cars in his collection.

Peter Holcombe '68 was named Woodturner of the Month at The Woodturning School in Damariscotta, Maine. After 30 years as a self-employed carpenter, he now hopes to sell projects in galleries and online.

1970s

U.S. Rep. **Todd Akin '70** (R-MO) was honored with the 2007 Distinguished Christian Statesman Award by the Dr. D. James Kennedy Center for Christian Statesmanship.

Domenic Forcella '70 presented a photography exhibit at the grand opening of the Heritage House cultural center in Hazlehurst, Miss. The showing featured his black-and-white portraits of the state's blues legends, which will become part of the center's permanent collection. His work has also appeared on the CDs of local artists, in local and national blues publications, and on www.megablues.com.

Randy Sablich '70 was promoted to vice president of the Metrigraphics Precision Components Division of Dynamics Research Corp.

David Asquith '71 writes, "After 34 years in retail management, I am happily retired in Central Florida with my wife, Linda."

Peter Markunas '71 joined Woods Hole Group as a coastal engineer.

Paul Lacouture '72 was appointed to the board of directors of NeuStar Inc. He is the retired executive vice president of engineering and technology for Verizon Telecom.

Steve Wilkinson '72 is a senior industrial engineer at Amgen in West Greenwich, R.I., where he is leading the introduction of lean manufacturing.

Peter McDermott '73 was appointed co-chair of the Massachusetts Bar Association's Business Law Section. He continues to practice in the Boston office of Banner & Witcoff.

Tom Descoteaux '76 was named Utility Contractor of the Year by the Utility Contractors Association of New England. He is vice president of R. H. White Construction.

Ben Jacobs '76 serves as deputy director for grant programs and community outreach for the Council for Arts and Humanities for Staten Island, N.Y. He continues to perform as a storyteller.

Neal Wright '76 joined Hayes, Seay, Mattern & Mattern Inc. in Roanoke, Va., as a vice president and market director for military programs.

Al Barry '77 helped launch a new business, with offices and a factory in China. Wuxi REM Ltd. does mechanical design, machining, and forming for contract customers. Al and Laurie split their time between homes in Atlanta and West Falmouth, Mass. Son Matthew is teaching middle school in Atlanta, and daughter Ashley just graduated from Cornell.

Dominico Grasso '77 was interviewed by the *Burlington Free Press* on his goals for the College of Engineering and Mathematics at the University of Vermont, where he has served as dean since 2005.

Jeff Harrington '77 recently expanded Harrington Group Inc. with the opening of a new office in Charlotte, N.C. His recent publications include articles in *WERCSheet* and the *NFPA Journal*.

Joseph Williams '77 retired from Ford Motor Co. as program manager for the Ford Fusion. He was part of many programs, from the Windstar to the Lincoln Town Car to the Mustang. "I will miss Ford Motor Co., and all the people there, including several WPI alumni. I plan on spending more time with my children and restoring my classic Mustangs."

Bob Chapell '78 was promoted to senior project manager in the Dedham, Mass., office of Woodard & Curran.

Paul Lefebvre '78 is technical director at the Naval Undersea Warfare Center Division Newport. He lives in Tiverton, R.I.

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*Based on one person, age 61, who defers the first paym for 10 years. Charitable gift annuities pay a life income based on your age. You earn a tax deduction and incon for life, and you support WPI with a generous gift. Ease of giving is our service to you—you can use appreciated stock to create this gift.

ALDEN SOCIETY

John Wallace '78 invites classmates to check out his website at homepage.mac.com/wallacejj/Menu2.html.

Wesley Wheeler '78 joined Pantheon Inc. in Toronto, as executive director. He previously held top management positions at Valeant Pharmaceuticals International, DSM Pharmaceuticals Inc., and GlaxoSmith-Kline. He is the son of **Wes Wheeler '54**.

Joseph Kolis '79 is executive director of the Clemson University Research Foundation Board.

Jason Providakes '79 (MSEE '80) was appointed director, senior vice president, and general manager of the Center for Enterprise Modernization (CEM), the federally funded research and development center (FFRDC) that the company operates for the Internal Revenue Service.

1980s

James Idelson '80 is vice president of marketing for Ezenia! Inc.

Mark O'Neil '80 is CEO of DealerTrack Inc., a company that provides automatic credit applications to auto dealerships.

Martin Rowe '80 writes, "I've recorded and released my fifth song about electrical engineering, 'Electrical Heroes.' Now all those great scientists and inventors who made significant discoveries in electricity—from Franklin to Hertz—are no longer 'unsung.'" See tmworld.com/article/CA6504260.html.

Paula (Green) Curry '82 and the attorneys of her previous firm, Kaitz + Associates, joined Sherin and Lodgen LLP of Boston.

David Kelly '82 was appointed CEO of Bluefin Robotics, a wholly-owned subsidiary of Battelle Memorial Institute.

Linda (Mitchell) Manchester '82 is founder of Essential Solutions LLC.

Steve Rohrbacher '82 founded Millennium Plating Company (magplate.com) in 2004. He writes, "Our niche is the plating of magnesium alloys for the aerospace and commercial markets. Our customers range from Lockheed Martin to Harley-Davidson. Together with my wife, Ruth, and daughter, Melissa, we continue to prosper and grow."

Wally Towner '83 writes, "I'm working on two new ventures: Dynamic Lease, a highly differentiated equipment leasing company, and TD Corsair & Co., my financial planning practice. Carolyn has her own property insurance agency. Don't know about you, but this three kids in college thing is getting old fast."

Michael Bonder '84 is vice president of manufacturing at DTC Communications, a video and audio surveillance company.

John Herrin '84 is vice president of manufacturing for SuperPower Inc., manufacturer of high temperature superconducting (HTS) materials and devices.

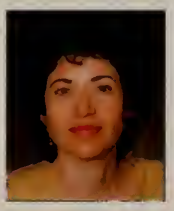
Robert Kilroy '84 was named a partner in the labor and employment law group of Mirick O'Connell.

Joseph McCartin '84 is CIO for National City Corp.

Stuart McLean '84 is a managing director of Alvarez & Marsal ImPART Group.

Bruce Harley '85, technical director of Conservation Services Group, received a 2007 Legacy Award from the Energy & Environmental Building Association. He has published widely and gives seminars on home energy efficiency and sustainable building.

Dave LaBranche '85 retired in 2005 from a 20-year career as an Army Corps of Engineers officer. "I have been working in my second career as a geospatial engineer with Northrop Grumman in the DC metro area. The geospatial technologies profession is growing rapidly, with great opportunities for engineers."



Jo Anne Shatkin '85 joined CLF Ventures, a nonprofit environmental consulting affiliate of the Conservation Law Foundation, as managing director.

Eileen Ego '86 and her partner, Corrine Frost, were featured in a 2007 Mother's Day newspaper article on the battle for gay marriage rights in Connecticut. They live in Griswold with their daughters, Kailey and Kianna.

In the Public Eye

Richard Whitcomb '43 was inducted into the **Paul E. Garber First Flight Shrine** in the Wright Brothers National Memorial in North Carolina. "Dick Whitcomb's intellectual fingerprints are on virtually every commercial aircraft flying today," said a Smithsonian aviation historian ... **Len Polizzotto '70** was profiled in **Mass High Tech** recently. He is senior executive for strategic business development at The Charles Stark Draper Laboratory in Cambridge, Mass. ... the Worcester **Telegram & Gazette** ran a historical piece on Cutler Associates and its first hire: **Fred Mulligan '71**, now company president ... **Ron Zarrella '71** made **Rochester Business Journal**'s 2007 Top 50 list ... **Alden Bianchi '74** was named a Massachusetts Super Lawyer in **Boston Magazine**'s annual list of the Commonwealth's Top 100 Lawyers ... **Reed Mosher '77** earned the **Bronze Order of de Fleury** medal for his accomplishments at the U.S. Army Research and Development Center, where he serves as technical director for Survivability and Protective Structures and lead technical director for Military Engineering ... biathlon devotee **John Osowski '77** was interviewed and photographed for an article in the **Rochester Democrat & Chronicle**. He competed in the Empire State Winter Games this year ... **Eric Hahn '80** was featured in the IEEE journal **Spectrum**, in an article called "The Codemaker" ... **NASA**'s Southwest Research Institute recently featured **Jennifer Crock '95** on its IBEX (Interstellar Boundary Explorer) website. She is program manager for ATK, the company responsible for the IBEX spacecraft's propulsion motor ... **Jeremy Hitchcock '04** and **Tom Daly '04**'s company, DynDNS, was named a "Best Small Company to Work For" by **Business NH Magazine**. The company also received the **Innovation Rocks! Award** from the Business Resource Center at the state's Division of Economic Development and made the **Inc. 5000** list of "Top Companies in Telecommunications" ... **Todd Prokop '07** was honored with the **North American Interfraternity Conference Award of Distinction**. The TKE alumnus is working toward a master's in civil engineering at WPI.

Bookshelf

Recent and new publications by the WPI community

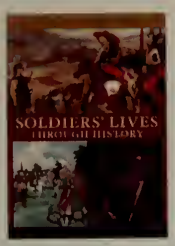
Finding a Fallen Hero: The Death of a Ball Turret Gunner

by Bob Korkuc '84 and James M. McCaffrey *University of Oklahoma Press*

When Bob Korkuc's uncle was lost on a bombing mission during World War II, the family thought that his body had never been recovered. In 1995 they learned that Anthony "Tony" Korkuc, a gunner on a B-17 Flying Fortress, was buried at Arlington National Cemetery. Bob Korkuc's book documents his seven-year search for the truth about what actually occurred over the skies of Germany half a century ago. "A riveting story of what must have been one of the most dangerous and vulnerable jobs in all of war," says filmmaker Ken Burns.

Soldiers Lives Through History: The Early Modern World

by William Astore '85 and Dennis Showalter *Greenwood Press*



Astore and his co-author draw on the words of soldiers and period historians to render richly detailed descriptions of military life from the 15th- to the 18th century. Topics include recruitment, weaponry, living conditions, leadership, motivation, and morale. An associate professor of history at Pennsylvania College of Technology (an affiliate of The Pennsylvania State University), Astore holds a master's degree from Johns Hopkins University and a doctorate from the University of Oxford.

The Fugitive Wife

by Peter Brown *W. W. Norton & Co.*

In 1900, Edwin "Ned" Hacker Brown, WPI Class of 1898, set out from Worcester to prospect for gold in Nome, Alaska. His grandson, Peter Brown, uses his grandfather's adventures—and his mechanical expertise—as the starting point for a historical novel that brings together an idealistic engineer and a resourceful farmwoman fleeing a disastrous marriage. *The New York Times* calls *The Fugitive Wife* "an enormously satisfying first novel about the dreamers and schemers who flocked to Alaska at the turn of the 20th century."

1990s

Joe Barbagallo '91 was promoted to senior vice president in Woodard & Curran's White Plains, N.Y., office.

Gerry Burns '91 was appointed CEO of USRobotics, provider of wireless and wired connectivity technology for the home or small business, with headquarters in Schaumburg, Ill. In September 2007, classmate **Brian Gosselin** joined Gerry as COO.

Loan Ngô '91 was promoted to vice president, Barnes Enterprise Systems, at Barnes Group Inc. in Bristol, Conn.

Yael Schwartz '91 (PhD) is founding CEO of Hygeia Therapeutics (formerly Orcas Therapeutics). The company has signed an exclusive agreement to develop and commercialize a topical synthetic estrogen treatment for vaginal wall atrophy that was developed at Yale University.

Andrew Hoyen '92, director of professional services, North America, at Care Stream Corp., was named one of *Rochester* (N.Y.) *Business Journal*'s "40 Under 40," sponsored by the Simon School of Business at the University of Rochester. He represented WPI at the inauguration of RIT's new president.

William Katzman '92 and Anita Tyner celebrated their new life together as husband and wife on July 21, 2007. The celebration took place in Rush, N.Y.

Quentin Rissler '92 has served as lead bridge engineer at RETTEW since 1999. He was recently named one of the firm's first associates.

Andrew Stern '92 is senior VP, business development, at Ecosphere Energy Solutions.

Matt Boutell '93 and his wife, Leah, announce the arrival of Annastasya Jeanne, born Sept. 27, 2007, and welcomed warmly by her four older siblings.

Christopher Bowen '93, MS'99 is a co-author of *Professional Visual Studio 2005 Team Systems*. He is lead applications architect at Monster.com in Maynard, Mass., and a member of Microsoft's Patterns & Practices Customer Advisory Board.

Tim Daisy '87 joined Prism in Wilmington, Mass., as sales and marketing executive for North America.

Rick Farland '87 was promoted to director of product engineering at Hyde Tools in Southbridge, Mass.

Jasmohan Singh '87 (graduated in 1986) and his wife, Gona, have one son, Indraveer, born in 1995. Jasmohan is managing director of Frick India Ltd., a leading industrial refrigeration presence in India, doing business in 19 countries.

Michael Blazejowski '88 is northeast sales manager for the commercial/food sectors of Alchemy Systems.

Julie Peck Trevisan '88 and her husband, Jay, live in Fuquay Varina, N.C., with sons, Zach, 6, and Luke, 4, and daughter, Kendall Gail, born Nov. 15, 2006.

Lt. Col. **Kevin Daul '89** commands the Air Force Nuclear Weapons and Counterproliferation Agency.

Jeff Goldmeer '89 was promoted to fuel flexibility platform leader in GE Energy's Power Generation business unit. Based in Schenectady, N.Y., he leads product development of heavy duty gas turbines to meet expanding fuel markets.

Fran Hoey '89, senior vice president of Tighe & Bond, made *Business West*'s list of "40 Under 40."

Todd Wyman '89 is vice president, Global Supply Chain—Transportation, at General Electric in Fairfield, Conn.

Christine (Fillion) Miska '93 was honored at a March ceremony in Cambridge, Mass., as one of ten 2008 Women to Watch by *Mass High Tech: The Journal of New England Technology.* Miska works as a systems engineering functional manager at BAE Systems IR Imaging Systems in Lexington, Mass.

Steve Vassallo '93 was promoted from entrepreneur-in-residence to principal at Foundation Capital. He lives in Palo Alto Calif., and holds 19 patents.

Leonard Belliveau '94 and his wife, Stacy, welcomed daughter (and future WPI graduate), Alexandra on June 4, 2007. Big sister Maya, 3, could not wait to meet her. Len is a senior fire protection engineer and office manager of the Warwick, R.I., office of Hughes Associates in Baltimore.

Doreen Burrell '94 would like you to join her in welcoming her adopted son, Aiden Patrick. "He arrived on June 17 and is such a blessing," she writes.

Laurence "LJ" Dallaire '94 and his wife, Amy, announce the birth of their daughter, Gabrielle Marie, on June 22, 2007. She joins her sisters Isabelle, 5, and Camille, 3. LJ recently started as a fire protection consultant for Code Consultants Inc. in New York City.

Danielle (Luongo) Fries '94 (MS FPE '98) joined American Alarm and Communications in Arlington, Mass., as a fire protection engineer.

Dena (Niedzwiecki) Mechoso '94 and her husband, Diego, are pleased to announce the birth of their first child, Ella Marie, born Jan. 7, 2008.

Bethany Salek '94 and her husband, Andrew, welcomed their second child, Brendan Peter, on Dec. 3, 2006. His big sister, Lindsey Grace, is 3. Bethany continues her career at Saint-Gobain in Worcester, managing the customer service and quality departments for the Grains & Powders Division.

Craig Stephan '94 and his wife, Lauren Winterholer, recently returned from two years with the Peace Corps in Swaziland. Before their service in Africa, Craig worked for 10 years as a hardware designer engineer at Cabletron Systems/Enterasys Networks in Rochester, N.H., and Lauren directed the N.H. chapter of Girls on the Run. They live in Madbury, N.H., and can be reached at swazimoon@yahoo.com.

Jonathan "Jeb" Bertucci '95 and his wife, Michelle, welcome their third daughter, Gianna Mei, born Dec. 22, 2006. They, and big sisters Kayla, 9, and Mariah, 5, are living happily in Apex, N.C.

Tom '95 and **Raina (Shahbazi) Yeulenski '97** welcomed their first son, Jack, Aug. 30, 2007.

Jenn (Healy) '96 and **Mark Anderson '95** welcomed their second child, Lydia Rose, on Feb. 23, 2007. Mark is senior fire protection engineer at Vermont Yankee, and Jenn serves on the National HR leadership team at PricewaterhouseCoopers. They reside in Chesterfield, N.H.

Christopher Bruno '96 and his wife, Dianne, celebrated the birth of a son, Alexander, on May 16, 2007. They recently moved to Hudson, Mass., where Chris works for Teradyne Inc. as a systems architect.

The family of **Sue (MacPherson) '96** and **Eric Kristoff '94** has grown with the addition of Hayden, born in November 2005. Older brother Perrin was sad to give up the undivided attention of two parents, but is warming up to Hayden. Sue recently celebrated the first anniversary of her consulting business, The Kristoff Group LLC (kristoffgroup.com).

Melissa (Perkalis) '96 and **Jason Lamb '98** welcomed their third child, Michael William, on Dec. 22, 2006. He enjoys playing with his two older sisters, Sarah and Meghan.

Tim Tully '96 and his wife, Cara, added another boy to the family. Aidan Michael was born in December 2006. His big brothers are Connor, 10, and Seamus, 3.

Nathan Berube '97 is a project manager at Environmental Compliance Services in Agawam, Mass. He married Mary Packard last year.

Hector Hernandez '97 writes, "My wife, Sandra, and I welcomed our first child, Gael David, on July 15, which also happened to be my birthday. Quite a great present!"

Shannon Hogan '97 married Matthew Hollander, April 21, 2007. They both serve as pediatricians at Misawa Air Force Base in Japan.

Alison Faye (Possas) Johnson '97 and her husband, Christopher, welcomed to the world their son, Alexander Christian, on Jan. 27, 2007.

Brian '98 and **Kellie (Martin) Bresnahan '01** welcomed their first child, Claire Martin Bresnahan, on July 29, 2007. They live in Grafton, Mass.

Matthew Eastwood '98 is vice president of Enterprise Platforms Group, International Data Corporation, Framingham, Mass.

Kristen (Gongoleski) Fairbanks '98 and her husband, Jonathan, welcomed their first child, Connor, on Dec. 20, 2006. They make their home in Coventry, R.I.

Jill (Johnson) '98 and **Aaron Korthas '99** are pleased to announce the birth of twins, Jack and Kali, on Dec. 13 and 14, 2007. Jack weighed in first, at 7 lbs. 2 oz., and Kali came along three hours later at 5 lbs., 13 ounces. Mom is taking a break from teaching high school chemistry to stay home with them.

John Lambie '98 and his wife, Wendy, were also blessed with twins. Emma Faye and Evan Maverick were born Sept. 29, 2007, in Houston, Texas. After a brief stay in intensive care, both kids are healthy and happy to be at home.

Emma Palmacci '98 volunteers with Connecticut Greyhound Adoption, helping prepare retired racing dogs make the transition to house pet. The *Hartford Courant* ran an article on her efforts to help dogs left jobless by the closure of racing tracks find new homes. She works as a project analyst for Nerac Inc.

Aaron Shumate '98 married Satsuki Koyama. Aaron's grandfather officiated at the Sept. 1, 2007, wedding. The couple lives in Irvine, Calif.

Jennifer Brown '99, second from left, married John Gardner, Sept. 15, 2007. Shown with her are maid of honor **Jessica (Hamel) Kelly '99, Jennifer Marcello '99,** and **Tara Devarakonda '99.** Also in attendance were **Jennifer Marcello '99** and **Liam Kelly '98.** After a honeymoon in the Greek Islands, the couple lives with their two dogs in Woburn, Mass. Jen works for BiogenIdec in Cambridge as an oncology research scientist.

Justin Cozzens '99 and Jill Howard were united in marriage Aug. 25, 2007. They reside in Charlotte, Vt. Justin is employed at GE Healthcare, and Jill works for Vermont Information Processing. Her grandfather, Joseph Sotens, taught at WPI for many years.

Timothy Miranda '99 and Elizabeth Stewart announce the birth of Sophia Elena, on March 9, 2007.

2000

Mark Barr is a seminarian at St. John's Seminary. He was profiled recently in *The Pilot*, the Boston Archdiocese newspaper.

Kristiferanne (Dryer) and **Ryan Abraham '98** welcomed their daughter, Haley Elizabeth, on Jan. 2, 2007.

"Married the love of my life, Jenene, on Jan. 27, 2007," writes **Stefano Ceriana**. They happily announce the birth of their daughter, Anna Sophia, on Oct. 16, 2007.

Holly (Weymouth) Fanjoy and her husband, Rob, welcomed their first child, Jacob, on Dec. 16, 2007. Holly is completing her residency in emergency medicine at the University of Michigan and will start employment at Eastern Maine Medical Center in Bangor in the fall.

Scott "Skoot" Hamel is in the PhD program at the University of Wisconsin, Madison, researching long-term creep of wood plastics. He completed his master's at the University of Colorado in August 2005, and married Ellen Adams on Sept. 30, 2006.

Steve and **Lisa (Baroffio) Vallee** welcomed Alexander Scott on Nov. 30, 2007.

Nathan and **Sarah Snow Wilfert** welcomed their second child, Ridge London, Aug. 24, 2007. The family resides in Redmond, Wash.

2001

Brian Blair is serving in the Navy. He married Caitlin Deeble, an elementary school teacher.

Mike Gorse works for Duxbury Systems in Westford, Mass., as a programmer of Braille translation software. He participates in the Vision 5K walk in Boston, with fellow employees—both blind and blindfolded—as a fund-raiser for advocacy, literacy, and rehabilitation programs for people with visual impairments.

John Gleeson took the men's title in the Stratham (N.H.) Fair Road Race last summer. His recent races include the 2007 Boston Marathon and the Mt. Washington Road Race.

Paul Leemans (MS CS) is living in the Netherlands and working for Philips International in Eindhoven. He was recently promoted to director, Internet, Intranet, Portal. His fourth child (pictured) was born in March 2007.

Stacey Leisenfelder graduated from SUNY Upstate Medical University with a PhD in microbiology and immunology. She is now a postdoctoral scientist at the University of Connecticut in Farmington.

Many alumni turned out for the wedding of **Michael Quigley** and Jennifer Grimes on Aug. 12, 2006. The couple lives in Stoneham, Mass.

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2002

Navy pilot Lt. **Matthew Billings** had the honor of flying a group of Red Sox players who visited his base at North Naval Air Station for a tour of a Navy destroyer last summer. His co-pilot on the MH-60 Knighthawk (Sierra) helicopter ride was a Worcester State grad, and the rest of the chosen crew were also Red Sox fans. He has been stationed in Coronado, Calif., for three years and has served two tours of duty in Iraq.

Brian Conway and Kathleen Wilson were engaged on Feb. 13, 2008. Brian works as a software engineer in Marlborough, Mass. Kate is a graduate of Merrimack College ('01) and is a QA Engineer in Framingham.

Kevin and **Shannon (Hoosick) Cornwall '03**, who were married in February 2005, welcomed their first son, Conor Xavier, on Aug. 10, 2007.

Meghan (Fraizer) Cryan and her husband, Marc, are proud to announce the birth of their second child, Molly Rose, born Sept. 24, 2007. The family also includes big sister Emma.

David Daltorio (MS CPM) joined Woodard & Curran as a project engineer.

Thomas Geer was promoted to superintendent at Consigli Construction Co., where he has worked since 2005. He has had several academic institutions as clients, including Harvard, Framingham State, and the University of Vermont, and he is currently managing a regional high school project.

Michael Krager and Alyssa Chelotti became engaged on Feb. 22, 2007, in North Conway, N.H. Michael is working at Kidde-Fenwal as a mechanical engineer. Alyssa is an elementary school teacher.

2003

David and **Andrea (Maderiro) Baker**'s baby, Lola Jane, was born Feb. 2, 2006. "Andrea has taken up American Sign Language while being an amazing stay-at-home mom," says Dave. He is working at Item NPD (itemnpd.com), and when not spending time with his family, still manages to get out racing. They live in Bristol R.I. "Check out bakersdozenracing.com to see pictures of us and our adventures!"

Sam Gutmann, Neal Bradbury, and **Steve Frank** started Intronis, an Internet-based backup system in Englewood, N.J.

2004

Jeff Bacon, senior software engineer at SeaChange International, was named one of *Mass High Tech*'s "People to Watch Under 30."

Correction: **John Baird** received a master's degree in biostatistics, not epidemiology, as reported in the last issue. He graduated from the Yale Graduate School of Arts and Sciences. John is now a PhD student in the Department of Biostatistics at the University of Pittsburgh Graduate School of Public Health. More information on his Create a Comic Project, which promotes literacy for school children, may be found at ccproject.comicgenesis.com.

Erin Dupak and **Thomas Daly** were married June 23, 2007. Wedding attendants included **CJ Chretien** and **Jake McAleer '05**. Erin received a master's degree in bioengineering from the University of California, San Diego. She is an R&D engineer at Boston Scientific. Tom is president of Dynamic Network Services. The newlyweds reside in Nashua, N.H.

Anna "Hammer" Foss and **Craig "Ralphie" Dionne '03** became engaged on Jan. 8, 2008. Craig is a loss prevention consultant for Liberty Mutual Property, and Anna is a product specialist for Rogers Corp. They reside in Woodstock, Conn. A fall 2008 wedding is planned.

Anthony Maietta became engaged to Lauren Boulanger on Sept. 24, 2006; they will be married on July 6, 2008. He is currently working for Simonds International as director of new product development for Wood Processing Products. He is also the sole proprietor of Maietta Handbuilt Bicycles.

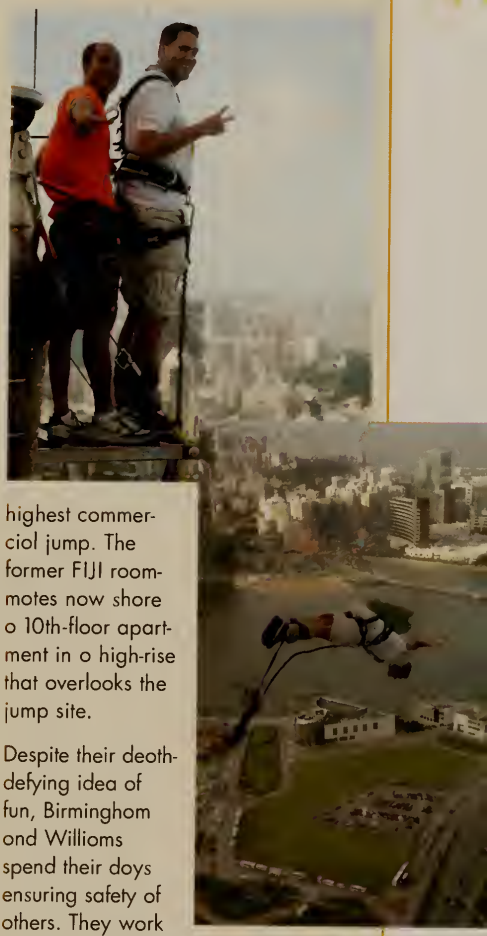
An excerpt of **Daniel Wallance**'s Sufficiency report, "Defrosting Embryo Adoption," written for the Center for Adoption Policy, was published in the book *Opposing Viewpoints: Reproductive Technologies*, published by Thomson Gale. His report examines current practices of embryo adoption.

2005

Dale Ames recently joined Beswick Engineering's Product Engineering Dept.

Marta Katrzyna Krajewska Asack and her husband, Louis, welcomed their first child, a baby boy, on April 10, 2007.

Jared Birmingham, left, and **Nick Williams** (both '02, '04 MS FPE) celebrated Independence Doy 2007 by bungee jumping from Macou Tower—at 764 feet it's the world's highest commerciol jump. The former FIJI roommotes now shore o 10th-floor apartment in o high-rise that overlooks the jump site.



Despite their deoth-defying idea of fun, Birminghom ond Willioms spend their doys ensuring safety of others. They work in Mocau for Rolf Jensen Associates, providing third-porty fire protection ond life safety review services to new casino operotors in the island's burgeoning Vegos-style entertoinment district.

Janet Moonan joined Woodard & Curran as a civil engineer. She is working on her MS in environmental and water resources engineering at Tufts.

Jessica Reidel is engaged to David Sarcione. The wedding is planned for the fall of 2009. They live in the DC metro area and plan to purchase their first home soon.

Master of Natural Science

Bob Gillies '68 was elected to serve as a member of the National Education Association Board of Directors in Washington, D.C., and a member of the Massachusetts Teachers Association Board of Directors, based in Boston. He is professor emeritus at Quinsigamond Community College.

Obituaries

William F. Drake '33 (Phi Gamma Delta) of Framingham, Mass., died Oct. 5, 2007. Predeceased by his wife, Anne (Gallagher), he leaves four children. A longtime industrial engineer for Dennison Manufacturing Co., he later founded William F. Drake Associates and opened Millwood Farms Golf Course, which his family still operates.

Harold B. Bell '34 (Theta Chi) of Worcester died Oct. 6, 2007. His wife, Corinne (Johnson), died in 2004. Two daughters survive him. Bell worked at Hobbs Manufacturing as a purchasing agent and was vice president of Worcester Stamped Metal.

Warren R. Burns '34 (Sigma Phi Epsilon) of St. Petersburg Beach, Fla., and Plymouth, Mass., died May 31, 2007. He was an engineer for Carter's Inc., and later for Sara Lee Corp. He was predeceased by his wife, Avis (Graves), and a daughter. A son survives him.

Charles J. Egan '34 (Sigma Alpha Epsilon) of Lexington, Mass., died March 8, 2007. Predeceased by his wife, Helen (Carney) in 1978, he leaves two children. Egan was retired from Liberty Mutual Insurance Co. as chief underwriter.

Transformations recently learned of the death of **Harold F. Greeney '34** in 1996. He was retired from Sandy Hill Corp. He and his late wife, Alice, had three children.

Herbert V. Leckie '35 (Phi Sigma Kappa) of Plymouth, Mich., died Aug. 25, 2007. His wife, Pauline, died in 1995. Two children survive him. Leckie was retired from Occidental Petroleum Corp.

Daniel J. Harrington III '36 (Sigma Alpha Epsilon) of San Diego, Calif., died Sept. 10, 2006. A graduate of the U.S. Naval Academy, he served as chief of staff of the Naval Air Basic Training Command in Pensacola, Fla., and retired from the Navy in 1969. He and his wife, Joyce (Hancock), had five children.

Transformations notes the death of R. Michael Hood, known at WPI as **Ralph I. Houdush '36**, in 1993. He and his wife, Rose, had two children. He was a retired accountant for the Massachusetts state government.

Walter B. Bauer Jr. '37 (Phi Gamma Delta) of Columbus, Ohio, died Jan. 23, 2007. His wife, Elizabeth, died later that year. He was vice president of William Bayley Co.

John C. Bradshaw '38 died Dec. 24, 2006, leaving his wife, Helen. A former engineer for U.S. Steel, he lived in Rocky River, Ohio.

Oscar A. Fick Jr. '38 (Lambda Chi Alpha) of Westbrook, Maine, died Oct. 10, 2007. He was retired from S. D. Warren Co., where he worked for 35 years, serving as chief electrical engineer and superintendent. His wife, Connie (Lewis), died in 1991. Two children survive him.

Henry S. Blauvelt '39 (Phi Sigma Kappa) of Liberty Corner, N.J., died Feb. 18, 2008. Predeceased by his wife, Eleanor (Gillett), he is survived by three children. Blauvelt was retired from Public Service Electric & Gas as assistant general manager of electric transmission and distribution.

R. Adrien Jacques '39 (Alpha Tau Omega) of Ho-Ho-Kus, N.J., died June 11, 2007. He leaves his wife, Patricia (Hardy), and three children. His first wife, Helen, predeceased him. A sales engineer, he worked in management for several machine tool companies.

Arthur H. Mallon '39 (Phi Kappa Theta) of Worcester, died Sept. 11, 2007. His wife, Helen, died in 2006. Three children survive them. A proud alumnus, his license plate read WPI 39. Mallon earned a master's degree in civil engineering from Northeastern University and taught at several colleges in the Boston area, where he also contributed to renovations of historic landmarks. He later worked for the U.S. Department of Defense and the Environmental Protection Agency.

Donald Ramaker '40 (Phi Gamma Delta) of South Glastonbury, Conn., died Sept. 12, 2007. He worked for Hamilton Standard for 37 years and retired as chief of design. He leaves his wife, Jean (Mitchell), and three children.

Alden T. Roys '40 of Worcester died July 19, 2007. He earned a master's in mechanical engineering from WPI in 1963 and worked at Alden Research Laboratory. He was the son of the late Francis W. Roys, Class of 1909, a former professor and interim president of WPI. Survivors include his cousins and his longtime caretaker, Lucille Bressette.

Transformations has learned of the death of **Donald S. Denio '41** (Theta Chi) in 2005. He was retired from Boston & Maine Railroad. His wife, Patricia, survives him.

John S. Ingham '41 (Alpha Tau Omega) of Surprise, Ariz., died Dec. 25, 2006, leaving his wife, Doris. He earned a master's degree in aerospace engineering at California Institute of Technology and worked in research and development for the U.S. Air Force. He later retired from ARO Inc.

F. Douglas McKeown '41 (SIM '62) (Lambda Chi Alpha) of Worcester died April 12, 2007. His wife, Rosamond (Hughes), died in 2005. Two daughters survive him. McKeown worked at U.S. Steel for 25 years and later retired from New England High Carbon Wire Corp. He served as assistant director of research at WPI in the 1960s, helping students and faculty collaborate on corporate research projects.

Edwin M. Ryan '41 of Alexandria, Va., died April 7, 2007. After serving as a naval aerospace engineer during World War II, he joined Piasecki Helicopter Corp. He later served as a mechanical engineer for the Navy's Bureau of Aeronautics and the Naval Air Systems Command. Predeceased by his wife, Jane, he leaves four children.

Jerome E. Schread '41 (Phi Kappa Theta) of Stone Mountain, Ga., died May 26, 2007. He leaves his wife, Marion (Collins). He worked for Bath Iron Works in Maine.

Philip J. Hastings '42 (Theta Chi) of Strongsville, Ohio, died May 5, 2007. He was retired from a 39-year career with Union Carbide, during which he traveled to many parts of the world to implement new furnace technology for steel production. He leaves his wife, Mary (Starbuck), and five children.

Kelvin H. Kiely '42 (Alpha Tau Omega) of Reading, Mass, died April 1, 2007. A longtime mechanical engineer for General Electric, he leaves four daughters. He was predeceased by a son.

Warren Robert "Bob" Lotz '42 (Sigma Phi Epsilon, Skull) of Bayside, Wisc., died Jan. 26, 2008. The former president and chairman of Cecco Trading Co., he later founded Timber Holdings International with his son Brian. His expertise in organic wood preservatives resulted in several patents on nontoxic treatment methods. He was a longtime trustee of The ALS Association, which established the Lotz Humanitarian Award in his honor. Survivors include his wife, Adelle, and four children. A daughter preceded him in death.

Paul C. Yankauskas '42 of Long Beach, Calif., died Nov. 26, 2007. He was retired as plant manager from Ohline Corp. Survivors include his wife, Helen, and six children.

Jackson L. Durkee '43 (Alpha Tau Omega) of Bethlehem, Pa., died June 14, 2007. He leaves his wife, Marian (Carty), and three daughters. An expert on steel suspension bridge construction, he spent most of his career with Bethlehem Steel Corp., where he developed the parallel-wire strand method of cable construction. He later taught at Cornell University and developed his own consulting practice. A former president of the American Society of Civil Engineers, he was elected to the National Academy of Engineering in 1995 and honored with WPI's Robert H. Goddard Award for Outstanding Professional Achievement in 1998.

George F. Fairhurst '43 of Waldorf, Md., died March 1, 2007. He leaves his wife, Joyce, and five children. He retired from RCA in 1974 as director of product assurance and later held the post of director of strategic planning for Downey Community Hospital.

Harry H. Merkel '43 (Alpha Tau Omega, Skull) of Brewster, Mass., died Aug. 27, 2007. He leaves his wife, Nancy (Ellis) and three children. He was predeceased by his first wife, Frances (Rickard). Merkel was retired from Mercury Co. as CEO and board chairman.

Robert A. Painter '43 (Theta Chi) of Winchester, Mass., died May 25, 2007. Survivors include his wife, Louise (Brennan), and two children. Painter founded Electronic Instrument and Specialty Corp. and later served as president of Beta Labs Inc. and Specialty Corp.

Carle W. Highberg '44 (Lambda Chi Alpha) of Sycamore, Ill., died Oct. 10, 2006. He was the retired vice president of research and development for Elgin Diamond Products. Predeceased by his wife, Mary (Carpenter), he leaves two children.

Floyd F. Smith '44 (Lambda Chi Alpha) of Greenville, S.C., died Sept. 27, 2006. He leaves his wife, Mary White, and six children. Smith was retired from GE Lighting.

Transformations recently learned of the death of **Wallace A. Underwood '44** (Phi Sigma Kappa) in 2004. A former partner with Samuel Ayres Associates, he later worked for American Can Co.

Howard D. Gerring '45 (Alpha Tau Omega) of Fairfield, Conn., died April 16, 2007. He retired from a 25-year career with International Paper Co. in 1978 and later worked for Connecticut National Bank, now Bank of America. He leaves his wife, Lillian (Pastore), and three children. He was predeceased by his first wife, Jeanne (Adams).

John T. Hegeman '45 (Theta Chi) of West Vancouver, British Columbia, Canada, died April 14, 2007. He leaves his wife, Nanette, and two children. He was retired as vice president of Chemetics International.

Rev. **Willard "Bill" Legg '45** of Leicester, Mass., died June 16, 2007. He is survived by his wife, Eleanor, and three children. A longtime Methodist minister, he served churches in Massachusetts, Connecticut, and Vermont.

Roger P. Roberge '45 (Phi Gamma Delta, Skull) of Fort Myers Beach, Fla., and Hendersonville, N.C., died March 18, 2007. He is survived by his wife, Shirley (Carlson), and three children. He was predeceased by a son. A longtime HVAC engineer, he was retired as the owner of Roberge Associates.

William G. Hogan '46 (Phi Kappa Theta) of Southbury, Conn., died Oct. 18, 2007. He leaves his wife, Mary Ann (Wallace), and six children. He was a retired orthodontist.

Cecil A. McCurry '46 (Sigma Alpha Epsilon) of Zachary, La., died March 27, 2007. He was a retired papermaker. He worked for James River Corp. for 23 years. Survivors include his wife, Beti, and four children.

Ronald B. Paris '46 (Sigma Alpha Epsilon) of Worcester and Fort Myers Beach, Fla., died June 30, 2007. Predeceased by his wife, Elia (Ronnback), in 1990, he leaves two daughters and his fiancée, Diane Harrison. He was the longtime owner and operator of Indiana Screw Machine Products.

Edward T. George '47 (MS CM '49) (Phi Kappa Theta, Skull) of Hamden, Conn., died March 16, 2007. After a career in industry, he joined the computer science faculty at the University of New Haven and retired as department director and professor emeritus.

Edward F. Supple '47 (Phi Kappa Theta) of Nashua, N.H., died July 16, 2007. He received an MBA from Harvard Business School. A self-employed financial planner, he previously worked for Prudential Insurance. He and his late wife, Mary, had nine children.

Harold J. Devlin '48 (Phi Kappa Theta) of Conroe, Texas, died Feb. 13, 2007. An architect and engineer, his accomplishments include construction of the Houston Center project, renovation of the Creighton Theater, and expansion of the Texas prison system. He also served as director of project management for the Texas Children's Hospital. Survivors included his wife, Cynthia (Tuckey), and three children.

Carl P. Hershfield '48 (Alpha Epsilon Pi) of Canton, Mass., died March 11, 2007. He is survived by his wife, Betty, and a son. Hershfield was a retired consultant for Arthur D. Little Inc.

William L. Wagner '48 (MS EE) (Lambda Chi Alpha) of Ft. Myers, Fla., died July 30, 2007, leaving his wife, Barbara, and two children. He was a longtime manager at Northeast Utilities.

Rene H. Bachand '49 (Phi Kappa Theta) of Longmeadow, Mass., died July 18, 2007. He earned an MBA from American International College and retired as assistant superintendent of the Longmeadow Public Schools in 1991. He is survived by his wife, Mary (LaBella) and two children.

Thomas E. Donelan Jr. '49 died April 22, 2007, at his home in New Canaan, Conn. He leaves nine children and their mother, Joan Vincent Donelan. He was retired from Prudential Financial Services.

Eugene R. Rogers '49 of Waltham, Mass., died March 10, 2007. His wife, Shirley, survives him. He earned a master's degree in electrical engineering from Northeastern University and worked for Raytheon Co.

Wyman R. Thomas '49 (Lambda Chi Alpha) of Middlebury, Vt., died Aug. 9, 2007. His wife, Joyce (Goodro), died in 2005. He was a co-owner, along with his brothers-in-law, of Goodro Lumber Co., the family business founded by Joyce's father. His four children survive him.

John T. Cocker '50 (Skull) of Nantucket, Mass., died July 23, 2007, leaving his wife, Barbara (Cassidy), and two children. He was hired by Bell Telephone Laboratories right after graduation, where he continued until retirement, contributing to the design of the company's early computers and earning several patents.

Hammond Robertson Jr. '50 (Sigma Alpha Epsilon) of Cleverdale, N.Y., died Dec. 6, 2006. He is survived by his wife, Joan, and three children. He was retired from CIBA Specialty Chemicals and served on many town committees and boards.

Guido Biagini '51 of Bonita Springs, Fla., died April 24, 2007. He leaves his wife, Vivian, three sons, and a stepdaughter. Biagini received numerous patents for refrigerants used in the aeronautics industry. He also helped develop the backpack used on the first lunar landing. He retired from Hamilton Sundstrand Corp. in 1990.

William F. Sheehan Jr. '51 (Theta Chi) of Lenoxdale, Mass., died June 21, 2007. Predeceased by his wife, Maureen (Martin), he is survived by five children. He worked for General Electric Co. for more than 25 years.

Pirro P. "Peter" Quamo '52 (Phi Gamma Delta) of Swampscott, Mass., died June 23, 2007. He leaves his wife, Constance (Linehan), and four children. He worked for General Electric Co. for many years and later retired from General Systems Co. as vice president of marketing.

Kenneth E. Haaland '53 (Sigma Alpha Epsilon, Skull) of Pittsfield, Mass., died Sept. 4, 2007. After 35 years of service in the Ordnance Division of General Electric Co., he retired in 1990. His wife, Norma (Crane), died in 2003. Two children survive him.

Clayton S. Brown '54 (Sigma Phi Epsilon) of Westwood, Mass., died April 14, 2007. He was retired from Nova Biomedical Corp. He is survived by his wife, Jacqueline, and his son, Scott Brown '82.

John H. Greenaway Jr. '54 of Nashua, N.H., died Oct. 24, 2007. Survivors include his wife, Ruth (Linscott), and two children. Greenaway was the retired chairman and president of SKF Steel USA, and Ovako Steel USA.

Souren Jaffarian Jr. '54 of Ashland, Mass., died May 9, 2007. Survivors include two brothers, nephews, and a niece. He was retired from Dennison Manufacturing Co.

Jan K. Marthins '54 of Tonsberg, Norway, died July 3, 2007. He leaves his wife, Vera, and four children. He was a senior scientist in the Underwater Defense Division of FFI (Forsvarets Forskningsinstitutt), the Norwegian Defense Research Establishment.

Bruce A. Sealy '55 (Sigma Phi Epsilon) of St. Louis, Mo., died April 19, 2007. He was the owner of UniGraFix Inc. Two children survive him.

George P. Strom '56 (Phi Kappa Theta, Skull) of Jupiter, Fla., died Oct. 11, 2007, leaving his wife, Carla. He is also survived by two children. A graduate of the MBA program at Syracuse University, he was the retired director of materials management for Remington Products.

Gerald R. Wootton '56 (Sigma Alpha Epsilon) of Thomaston, Conn., died Sept. 26, 2007. He leaves his wife, Emma (Crameri), and three children. Wootton retired from QCI as an electrical engineer and later worked as a funeral assistant. He also founded Dew Consulting and held several patents.

Seymour L. Friedman '57 (Alpha Epsilon Pi) of Saddle River, N.J., died June 30, 2007. He is survived by his wife, Naomi, and two children. He was the CEO of International Sourcing Inc.

Pascal A. Mancini '57 (Sigma Alpha Epsilon) of Sterling, Mass., died Aug. 24, 2007. A chemical engineer, he worked for Stauffer Chemical and later served as a research analyst for NERAC. He leaves his wife, Errol (Smith), and three children.

John M. Sarkisian '57 (Sigma Phi Epsilon) of Northborough, Mass., died May 24, 2007. He was retired from Wyman-Gordon, where he designed and received patents for aircraft parts. He leaves his wife, Judith (Moore), and two children.

Fred A. Rossi '58 (SIM) of Leominster, Mass., died Oct. 11, 2006. He was 91. He was retired from Bay State Abrasives.

William H. Bailey '59 (Sigma Alpha Epsilon) of Florence, Ky., died unexpectedly on Sept. 28, 2007. He leaves his wife, Beverly, and three children. Bailey was a regional sales manager for Harmonic Direct.

David G. Holloway '59 of Deerfield, N.H., died June 29, 2007. Survivors include his wife, Dawn (Richards), and four children. He was a retired mechanical engineer for Gemini Valve Co.

Transformations recently learned of the death of **David B. Sullivan '59** (Phi Gamma Delta) of Fairfax, Va., in 2004. He leaves his wife, Judith, and two children. Sullivan worked for Northrop Grumman Aerospace and was retired as a principal from Booz Allen Hamilton Inc.

Francis G. Toce '60 of Cicero, N.Y., died July 9, 2007. He was the founder of Syracuse Scientific, dedicated to the design and manufacture of equipment for the medical x-ray industry. He leaves two sisters, nephews, and nieces.

Alfred L. Dunklee '61 of Torrance and La Canada, Calif., died April 26, 2007. A longtime aerospace engineer, he retired prematurely from TRW (now Northrop Grumman) due to ill health. He previously was a systems analyst for Martin Marietta (now Lockheed Martin) and a member of the JPL Mars Viking Project team. His wife, Joanna, survives him. He was the nephew of Robert E. Dunklee Jr. '40 and the brother of David E. Dunklee Jr. '63, both deceased.

George W. Durnin Jr. '61 (SIM) of Middleboro, Mass., died May 18, 2007, at age 76. He was the retired vice president of UMass Memorial Marlborough Hospital. He leaves his wife, Joyce (Targett-Olson), five children, and two stepchildren.

Richard J. Moore '61 (Phi Sigma Kappa) of Haverhill, Mass., died Feb. 14, 2007. He was retired from the Federal Highway Administration as an area engineer.

Kenneth A. Backer '63 (Theta Chi, Skull) of Brentwood, Calif., died April 26, 2007. He was vice president of marketing for Idea Courier. He leaves his wife, Gail, and two children.

Franco A. Baseggio '63 (Sigma Alpha Epsilon) of Mattapoisett, Mass., died April 17, 2007. He leaves his wife, Jacqueline (Dansereau), and three children. Baseggio spent 32 years with Gillette Co. and retired as director of product evaluation. He later held executive posts at Schick and Koeheler Associates.

Kenneth C. Benton '63 died Oct. 8, 2007. A resident of Jesup, Ga., since 2001, he was recently retired from Rayonier Fibers as

principal scientist. He received a PhD in polymer chemistry from the University of Akron. Survivors include his sister, Catherine Anton, and her husband, as well as a nephew.

David F. Beaber '64 (Phi Sigma Kappa) of Freedom, N.H., died May 31, 2007. His two children survive him. He earned an MBA at the Wharton School of Business and was president of Information Systems Management.

Robert P. Alekshun '66 of Auburn, Mass., died Aug. 26, 2007. He leaves his wife, Virginia (Luikey), and two children. He was predeceased by a son. Alekshun was the owner and operator of Superior Engraving and Stamp Works.

John H. Clinton '68 (Theta Chi) of Wakefield, Mass., died May 26, 2007. He worked as a self-employed consulting engineer in California for many years. He is survived by several cousins.

John B. Jacobs '68 (SIM) of Paxton, Mass., died April 22, 2007, at the age of 92. Predeceased by his wife, Katherine, he leaves two sons. Jacobs was retired as superintendent of New England Electric Systems of Worcester.

Raymond R. Stevens Jr. '69 (SIM) of Charlton, Mass., died May 26, 2007, at the age of 80. He was retired from American Optical Co. He is survived by his wife, Patricia, and three children.

Walter M. Jensen Jr. '71 (MS) (Lambda Chi Alpha) of South Dennis, Mass., died June 26, 2007, at the age of 74. He was a longtime mathematics professor at Worcester Junior College and Central New England College. After retiring from academia, he opened Olde Towne Antiques. He leaves his wife, Lynne, and a daughter.

Transformations has learned of the death of **Steven P. Rudman '72** of Garland, Texas, in 2001. He was the brother of Peter Rudman '77.

Former football and basketball team captain **James R. Buell '73** died unexpectedly on Sept. 12, 2007, at his home in Worcester. He was retired from Wyman-Gordon, where he worked as a civil engineer for 25 years. Two children survive him. A football tri-captain and wide receiver, Buell was a member of the WPI Athletic Hall of Fame and the Worcester Galaxy of Stars.

Transformations has learned of the death of **Robert Digennaro '73** (Lambda Chi Alpha) of Manassas, Va., in 2001. He is survived by his wife, Jane, and two children.

Ruey-Sen Lin '73 of Fremont, Calif., died July 4, 2006. He was principal engineer for Gadzoox Networks and previously worked for Digital Equipment Corp.

Louis E. Vigliatura Jr. '73 (SIM) of North Grafton, Mass., died April 18, 2007. He was 80. He leaves his wife, Mary (Generalli), and four children. He retired from Bay State Abrasives after 36 years and later served as a consultant for Organic Product Development of New Jersey.

Francis L. McCaffrey '74 (SIM) of North Oxford, Mass., died Oct. 29, 2006, at age 77. He was retired as supervisor of manufacturing standards for Norton Co. He leaves his wife, Geraldine (Murphy), and three children.

Harold L. Sundell Jr. '74 (SIM) of Worcester died March 31, 2007. He was 86. Sundell was retired from Worcester Gas Co. as a district manager. His wife, Geraldine, survives him.

Michael O'Hara '78 (Sigma Phi Epsilon) of Burnsville, Minn., died Dec. 1, 2007, after a five-year battle with multiple myeloma. He leaves his wife, Connie, and two children. He founded the MountainStar Group fire protection engineering firm and chaired several Minnesota state licensing and code advisory groups, including the Governor's Council on Fire Prevention and Control.

Jeffery G. Stickles '79 of Hampstead, N.H., died May 17, 2007. He earned an MBA at Southern New Hampshire University and served as senior director of manufacturing for Mercury Computer Systems. He leaves his wife, Jane (Martinelli), and a daughter.

Samuel Vangel '79 (SIM) of Southbridge, Mass., died May 8, 2007. He was 80. His wife, Catherine (Chaousis), and two children survive him. He was retired as general foreman for Russell Harrington Cutlery Co.

James W. Boland '81 of Johnson City, Tenn., died Dec. 16, 2006. After teaching mathematics in the U.S. Navy's Nuclear Power School, he went on to earn a master's degree from the University of Central Florida and a PhD from Clemson University. In 1992 he joined the faculty of Eastern Tennessee State University, where he served as graduate coordinator of the Department of Mathematics and director of the University Honors Programs. At WPI, Boland was known for establishing the Ultimate Frisbee league and introducing "Folf" (Frisbee golf) to the campus. He leaves his wife, Taby Garman, and two stepchildren. *Photo courtesy of ETSU.*

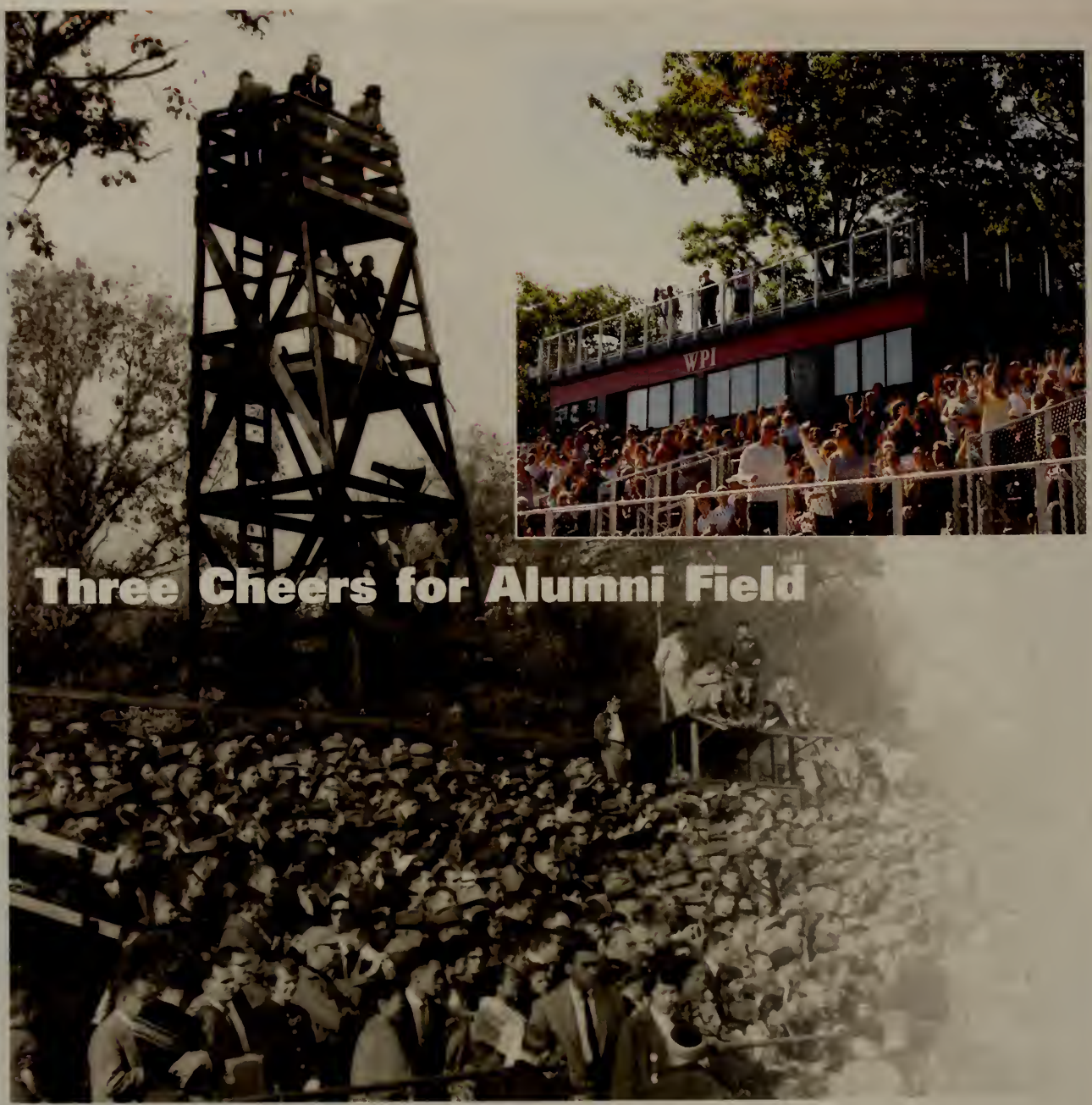
Kevin R. Fontaine '84 of Woodbury, Minn., died June 22, 2007, after a battle with esophageal cancer. He leaves his wife, Mary (Martenson), and two children. He was a software engineer for Bremer Financial Services.

Chauncey L. "Bill" Christian Jr. '89 (MBA) of Oak Bluffs, Mass., died Dec. 25, 2006, at age 77. He was retired from Polaroid, where he worked in the electronics and development engineering group orchestrating offshore operations in Asia, Europe, and Mexico. He leaves his wife, Anita, and two daughters.

Lino J. Brosco '98 (Alpha Chi Rho) of Methuen, Mass., died unexpectedly on July 5, 2007. He worked as an engineer in Boston and New York. Survivors include his parents and two sisters.

Ladislav H. "Laddie" Berka, professor emeritus of chemistry and biochemistry, died Feb. 7, 2008. A graduate of Union College, he received a master's degree in chemistry from the University of California Berkeley and a PhD from the University of Connecticut. An active researcher, he developed a particular interest in forensic science; he edited the forensic science column for the *New England Association of Chemistry Teachers Journal*, organized the Forensic Science Colloquia at WPI for many years, and collaborated on patents for new fingerprinting processes. Survivors include his wife, Barbara (Schemmel), and two daughters, Janis Kallgren and Karen Bruewer.
A complete obituary may be read at www.wpi.edu/News/Memoriam.

Time Capsule



Three Cheers for Alumni Field

In time for A-term, WPI completed the renovation of the Alumni Field complex, including the installation of new turf (the same used at Gillette Stadium, home of the New England Patriots), new bleachers and press box on the west side of the field, a scoreboard, and a field lighting system. The existing eight-lane track was resurfaced, and, during Homecoming Weekend in September, was named for legendary WPI coach Merl Norcross, who was head track and field coach for 42 seasons and served the Athletic Department for 53 years.

This renovation project was made possible by the generosity of several WPI alumni and their spouses—Janet and George Abdow '53, Mary Anne and James Carr '74, Barbara and Peter Horstmann '55, Nancy and Barrie Peterson '67, Ruth and Don Taylor '49, and Sandra and David Van Covern '53.

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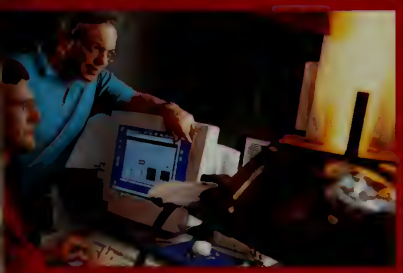

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—Carolyn Hunter '08

Last year, Carolyn traveled with her project team to rural villages in Thailand. There, they developed a strategy to efficiently use government-issued solar home systems, which were often unused or left in disrepair. By experiencing the Thai culture and engaging the local people, the team learned that the villagers loved the technology; they just hadn't been trained on how to repair it.

This project is just one example of the amazing work that WPI students are conducting around the world. Such opportunities are made possible by the generous support of alumni and friends.

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